ENGINEERING NEWS-RECORD

Waterproofing Florida's first auto tunnel p.28

A McGRAW-HILL PUBLICATION

313 N FIRST ST
ANN ARBOR MICH

HOW TO STORE LIQUIDS AT −320°F.

CB&I Hortonspheres built for cryogenic storage are spheres within spheres.

-built HORTONSPHERES® do it for Linde at Pittsburg, California

CB&I engineered, fabricated and erected these special Hortonspheres for Linde's new plant at Pittsburg, California, using Linde-approved designs. One is used to store liquid oxygen at —297° F. The other will store liquid nitrogen at —320° F.

Their construction is unusual . . . each structure is actually a sphere within a sphere. A specially designed rod support system cradles the 38′9″ diam. aluminum inner sphere within the 46′9″ diam. carbon steel outer shell. Heat transfer to the inner sphere is minimized by powdered insulation placed between the inner and outer shell.

Cryogenic storage calls for vessels of special design . . . and the know-how to build them. Linde Company used this know-how from CB&I's seven decades of craftsmanship in steel. So can your company. Write for further details.

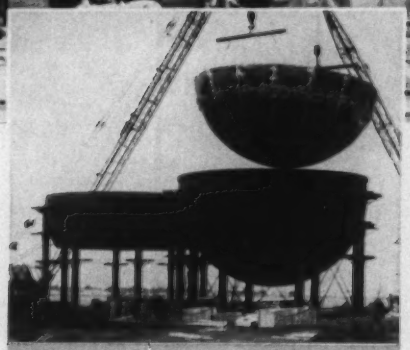
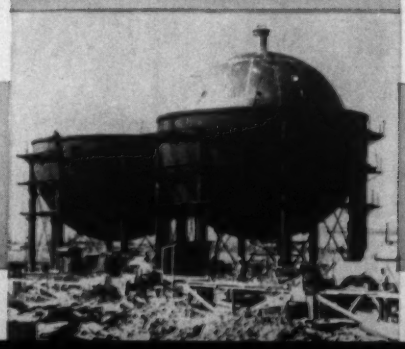


Photo taken during erection shows cranes setting section of aluminum inner sphere.

Above and below: Experienced CB&I erection crews make tough jobs look easy.



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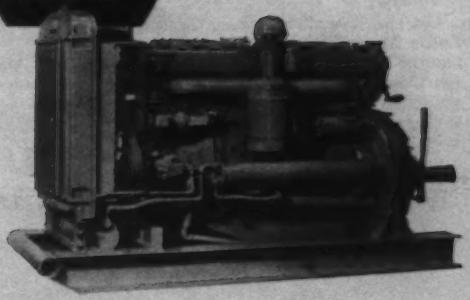
Two letters to remember in diesel engines and generator sets...

THE MP SERIES

MURPHY DIESELS



Here's the **MP** *Series Line-up*

MP SERIES ENGINES AND POWER UNITS—105 HP to 320 HP, 1200 and 1400 RPM.

MP SERIES DUAL FUEL ENGINES— also available.

MP SERIES GENERATOR SETS—60 KW to 188 KW.

MP SERIES MECH-ELEC UNITS for delivering mechanical or electrical power separately or simultaneously.

MP SERIES MARINE ENGINES AND AUXILIARIES—105 HP to 315 HP.

The 48-page booklet entitled "Before You Power a Job . . ." gives detailed information on MP Series Murphy Diesels. Ask your Murphy Diesel Dealer for a copy, or write direct. There's no obligation.

Deliver More Power Into the Job to Make More Profit for You

The power put into the job—not the power on the job, is the power that pays off for you. Engine reaction to load changes and speed changes determines the power that actually goes into the job. Only an engine with high rising torque can put more power into the job when needed.

MP Series Murphy Diesel engines are designed and built to deliver More Power into the job—the kind of *usable, hard-working power* you need. With high rising torque, they have the ability to take hold of a load and really hang on. This helps keep your equipment at the right operating speed for efficient production and More Profit. And remember, each day's production is determined by the *total power* put into the job that day.

To put MP Series Murphy power in your job, put Murphys on your job. You'll see the difference in your profits. Ask your Murphy Diesel Dealer for full information on the MP Series today.

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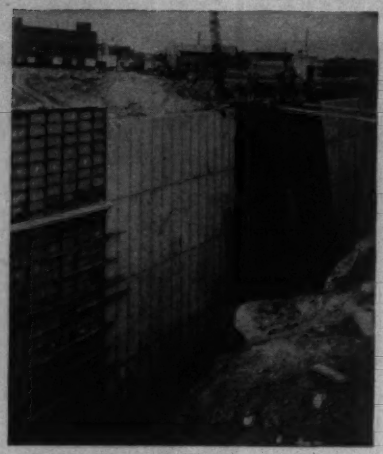
Sales, service and parts throughout the nation

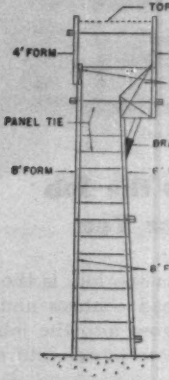
Battered Walls



Symons Forms on St. Louis Expressway

. . . Form Double Battered Walls 12" at Top, 3' at Base

On the downtown phase of the St. Louis Mark Twain Expressway, contractor R. B. Potashnick & J. S. Alberici Construction Company used 8,000 sq. ft. of Wood-Ply and 20,000 sq. ft. of Symons Steel-Ply Forms.



Job called for retaining walls, many of them double battered so that forms were angled to give 12" top thickness and up to 3' thickness at base. Heights varied from 4' to 34'. In addition, the forms were used to pour footings, abutments, piers and beams. Contractor obtained 30 re-uses.

Symons Forms may be rented with purchase option. Additional information on how to use Symons Forms for *battered walls* sent on request.

Symons

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ENGINEERING NEWS-RECORD

EIGHTY-SIXTH YEAR OF PUBLICATION

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LUBE LOGIC Five tips to

How to return stored engines to service

In a previous issue of Lube Logic we gave you an 11-point program designed to protect gasoline and diesel engines during long idle periods. Now we'd like to finish what we started by describing the routine for taking engines *out* of storage and putting them back into action.

1 Where Texaco Rustproof Compound L has been applied to exterior of engine, remove with kerosine.

2 Remove waterproof paper and tape from all openings.

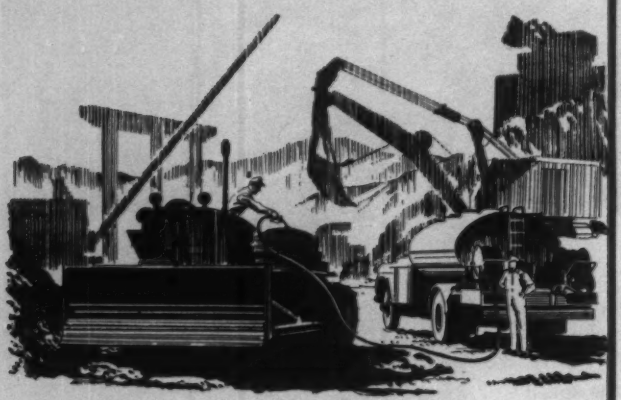
3 Remove spark plugs. Clean them and check the gap settings before replacing.

4 Remove distributor cap and clean Texaco Rustproof Compound L thoroughly from lobe of breaker cams. Replace cap.

5 Check the level of the crankcase oil. If it's at the full mark, there's no need to drain the oil before operating the engine unless it requires a different grade. If the oil has fallen below the full mark during storage, drain the engine and locate the oil leak, and repair it, then refill with the proper grade of oil, before operating the engine. The first oil change after the engine is back in service should be made in half the usual period.

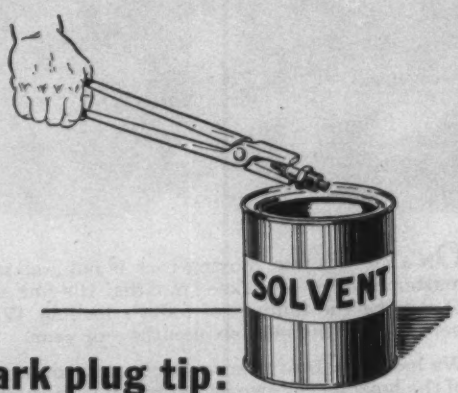
6 Check the cooling system for leaks, and add water or Texaco PT Anti-Freeze if necessary. It's not necessary to drain and flush if the cooling system was filled with a rust-inhibited anti-freeze before storage.

7 Fill the fuel system, start the engine, and let it run for a while. Check the oil pressure, and check for overheating and oil and fuel leaks.



End-of-shift is the best fueling time

They say there's a time and a place for everything, and for refueling equipment the best time is at the end of each day's work. And here are two reasons why. End-of-shift minimizes the possibility of fuel-tank rusting, because there's no room for condensate to form in a tank that's full of gasoline or diesel fuel. And tank-bottom sediment, stirred up by pumping in fuel, has a chance to settle down overnight, so it won't be drawn into the fuel line.

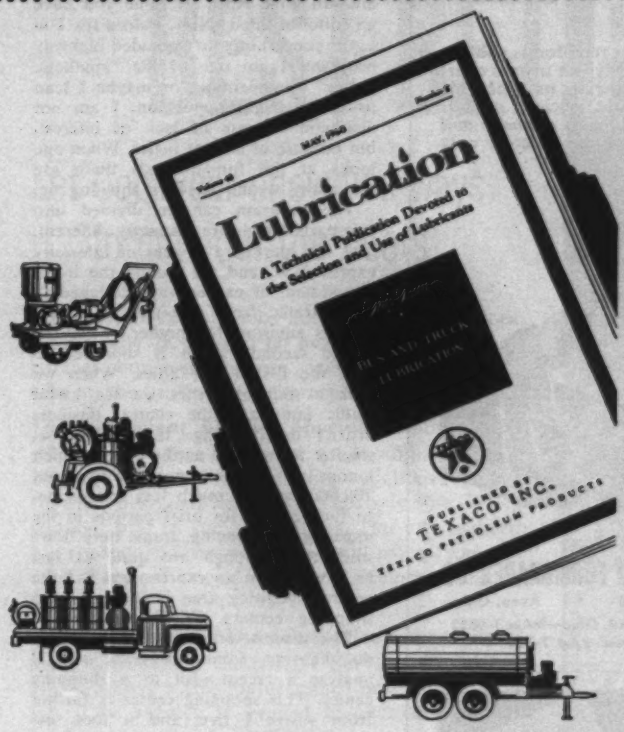


Spark plug tip: Degrease before you blast

Don't depend on your spark plug cleaner to do everything. As a matter of fact, you can actually make things worse by blasting an oil-fouled plug. Heavy oil deposits on the plug will pick up the abrasive and hold it in the recesses between the shell and the insulator. Result: burning and ultimate failure because these deposits can seriously affect the spark plug's ability to dissipate heat at high engine speeds.

Moral: degrease oil plugs in a suitable solvent and dry them *before* you blast.

prolong equipment service life


Lubrication
A Technical Publication Devoted to the Selection and Use of Lubricants
PUBLISHED BY TEXACO INC.
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The whole truth about mobile LUBE RIGS

- What good lube rigs are made of—the products and the dispensing equipment.
- How to use lube records to make your rig more valuable.
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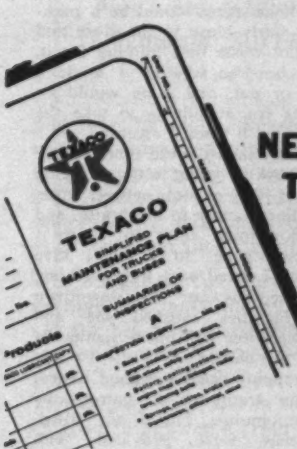
- Pros and cons of mobile and centralized lubrication.

What does it take to make a mobile lube rig? What do you put on it? How do you use it? The questions have been coming in so fast lately that Texaco has devoted a whole issue of its magazine, *Lubrication,* to answering them: the March 1960 issue, titled "Mobile Lubrication Equipment."

Lubrication is a major factor in cost control, and lube rigs can be a major factor in thorough maintenance, so send for your free copy of the March *Lubrication.* Supply of these valuable booklets is limited, so if you want one, send in your request *now* to Texaco Inc., 135 East 42nd Street, New York 17, N.Y., Dept. NR-10



NEW TRUCK RECORD FOLDER fits itself into your schedule

Texaco's flexible new truck record folder lets you stick to the lube schedule that works best for you without running into bookkeeping problems. Lubrication and oil schedules are completely separate from mechanical maintenance and replacement parts schedule—you don't have to follow any pre-established routine to use the folder profitably. And this new folder accounts for every single dollar you spend on truck maintenance for a whole year. Get yours now.

Tune In: Texaco Huntley-Brinkley Report, Mon. Through Fri.-NBC-TV

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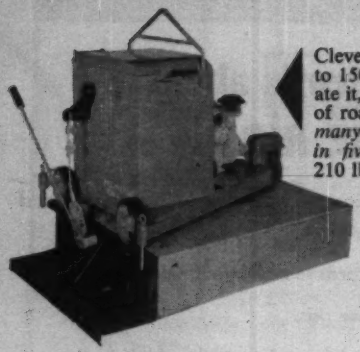
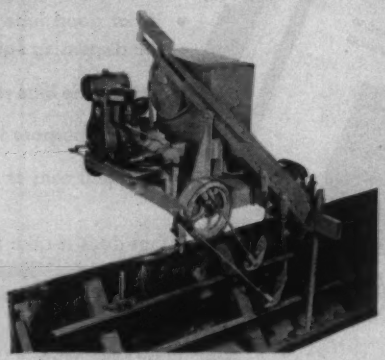


Cleveland Power Pin Puller for road forms pulls up to 1500 pins per hour, needs only one man to operate it, pulls pins out straight, operates on either side of road—in either direction. Safe, efficient, *pulls as many pins in two hours as four men normally pull in five hours!* Maximum load on concrete only 210 lbs.



Cleveland Self-Propelled Pin Puller operates efficiently on airport as well as road forms. Has all the advantages of the Power Pin Puller—plus, is self-propelled, operating on 4 wheels with operator riding. Has forward-neutral-reverse transmission.

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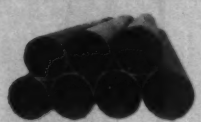

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Reader Comment

Who Needs Expressways?

SIR—In your April 21 issue you have an editorial titled "Now, Before It's Too Late" concerning the expanded highway program. I am one of the "apathetic public" you mention, or maybe I lean toward outright opposition. I am not apathetic because of lack of interest, but because of lack of belief. When one looks at the fundamentals there are too many wrong answers showing up.

The program can be divided into two parts which are distinctly different. The first part is a system of inter-city expressways, and the second the intra-city system of expressways designed to move traffic from one part of a city and its environs to another.

The second system is supposed to cure the ills of our cities. When we look at our big cities we see awful traffic jams and the central business district deteriorating. If we look at smaller towns such as the one in which I now live, with a population of about 200,000, we see much less congestion. In fact, except for brief periods in the morning and evening, traffic here flows smoothly, although not quite as fast as it would on an expressway. But the central shopping area is losing to the shopping centers. Why?

The reasons of others are probably no different from my own, so I'll analyze a recent visit to a shopping center. This shopping center is farther from where I live, and it took me longer to get there than it would have taken to get downtown. Before I started I knew there would be a parking space fairly close to the store and I would not waste time hunting for it. It would be free whether I made a purchase or not, and there would be no waiting for attendants to take the car and to get it when I returned.

Apparently then I saved time, money and foot work by going to the shopping center, but this is not entirely true. The bus line is close to my house, and to the downtown store to which I would have gone, so I didn't save money and I saved very little walking. Neither the bus nor the downtown parking facilities satisfied me and traffic congestion was not a significant factor in my choice.

Our shopping centers depend almost wholly on transport of patrons by private automobile, but if our downtown areas were provided with sufficient parking facilities to accom-

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed, Editor Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

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Jounce it over the roughest terrain and the Goodyear Super Road Lug shrugs off flexing, cuts and piercing blows. Reason? This tire embodies new and advanced super-toughening agents that make it super-tough on wear. What's more, rugged 3-T Processed Cord (nylon or rayon)—triple-tempered by Tension, Temperature and Time—give you unequalled tire strength and stamina.

Why not get the full story on the performance and savings that make the Super Road Lug your best bet for big jobs—and details on Goodyear Contractor Service—*before* your next bid. Just call your Goodyear dealer—or write Goodyear, Truck Tire Department, Akron 16, Ohio. Remember, lots of good things come from Goodyear.

World's Toughest Truck Tires by

GOODYEAR

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND

SIX JOHNSON PLANTS pour concrete on

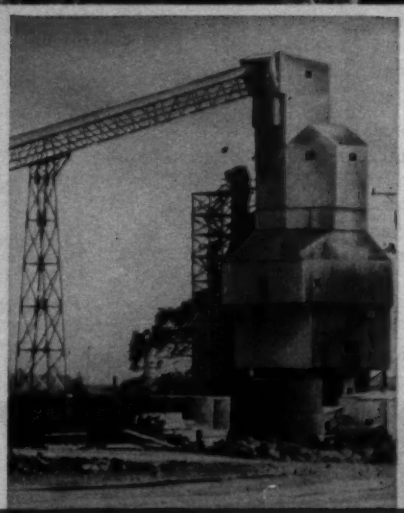
2 at Niagara Generating Plant

Merritt-Chapman & Scott have 3 Johnson concrete plants on the project. 2 are shown here at upper and lower trestles of Niagara Generating Plant. Upper installation has 1100 cu. yd. bin, three 4 cu. yd. mixers. Lower plant has 500 cu. yd. bin, three 4 cu. yd. mixers. Third Johnson plant, located near intake works, is described below.

(Photo courtesy of B. F. Goodrich Company.)

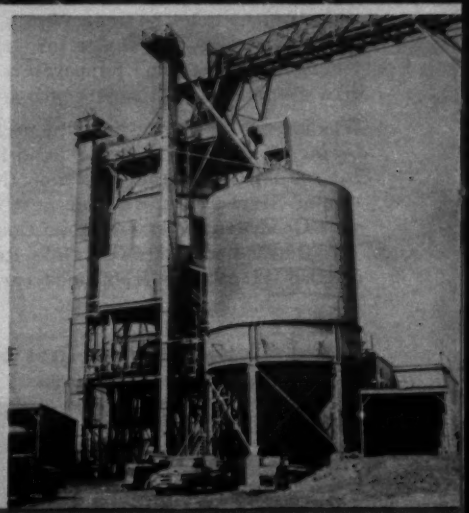
Viewed from 4000 feet up

Aerial photo shows work in progress on Niagara Generating Plant, with 2 Johnson plants at extreme left. When completed, project will produce approx. 2 million KW of electric power. *Photo Courtesy of Power Authority of the State of N. Y.*



Merritt-Chapman & Scott's

3rd Johnson plant, a 400-yard Octo-Bin, with four 2-yard mixers, feeds concrete for structures at the Intake Works on Niagara River above the upper rapids, and for a mile of twin conduits.



Tuscarora Contractors*

have the contract on pump generating plant at Tuscarora Reservoir. Theirs is a fully-automatic 400-yard Johnson Octo-Bin, with four 2-yd. mixers discharging directly into concrete buckets which are shuttled in on rail cars.

$720 million Niagara Power Project

PROJECT HIGHLIGHTS: Panoramic view (from Canadian side) identifies major structures: (1) Intake Works, where water is diverted from the Niagara River above the upper rapids. (2) Dual water conduits, each 46 feet wide, 66 feet high, about 4 miles long, under city of Niagara Falls, N.Y., towns of Niagara and Lewiston. (3) Tuscarora Reservoir, covering approx. 1400-acre area. (4) Tuscarora Pump-Generating Plant. (5) The Niagara Generating Plant at Lewiston, N.Y., where the diverted water is emptied back into the river below the lower rapids. Project takes maximum advantage of a 325-foot drop in elevation along this 7-mile stretch of river. Also will preserve longer, the beauty of the famous Horseshoe Falls, and American Falls, by reducing volume of water that surges over them. (6) Sir Adam Beck Generating Station is located downstream, on the Canadian side.

CONSTRUCTION history is being made on the $720 million Niagara Power Project under development by the Power Authority of the State of New York. First power is set for February 10, 1961 — just 3 years from the time first contract was awarded, and work is rapidly moving along on schedule. A remarkable achievement, considering record yardages involved. Over 1.7 million cubic yards of concrete are going into construction of the two generating plants, alone!

A large share of credit for construction progress goes to these contracting firms: Merritt-Chapman & Scott Corporation, Gull-Defelice, Tuscarora Contractors*, and Balf-Savin-Winkelman. It's interesting to note that all are using C. S. Johnson plants for high production of rigid-specification concrete. There's a very good reason for this: *experience!* Ever since the days of TVA, Grand Coulee, Hoover Dam, builders of large-scale concrete construction jobs have relied on Johnson® plants. This long-time experience and leadership in the field of big-volume concrete production are your assurance of efficient operation, high-quality engineer-approved concrete, and lowest cost-per-yard on every job — no matter how large or small. Read all about it in technical 44-page catalog "Suggestions for Planning Concrete Plants". Ask your local Johnson distributor for your free copy, or write to:

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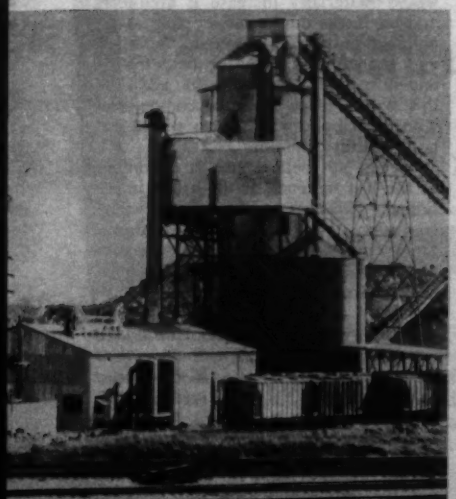
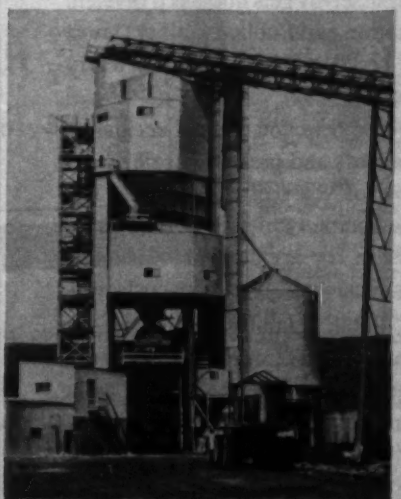
J18



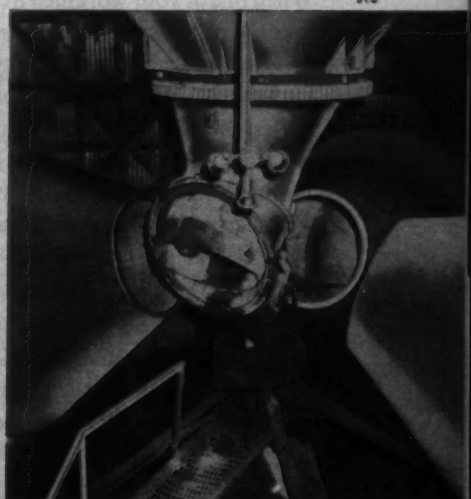
Balf-Savin-Winkelman

are speeding construction on 9,000-foot section of the 4-mile covered dual conduit system, carrying water from Intake Works to Tuscarora pumping plant. Here's their Johnson 500-yard concrete plant, equipped with four 4-yd. mixers.



Gull-Defelice

produce all concrete for their 5,500-foot section of conduit work in this 500-yard Johnson Octo-Six plant — making it 100% Johnson on the conduit section! This plant has 3 Koehring-Johnson 4-yard heavy construction mixers.



100% Koehring-Johnson Mixers —

All 6 Johnson plants on the Niagara Power Project are equipped with Koehring-Johnson heavy construction mixers — a total of 23! Here are 4-yard heavy construction tilting mixers in Merritt-Chapman & Scott's upper trestle plant.

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When one of your workmen or a passer-by gets hurt, let Travelers take over. Workmen's Compensation and Public Liability claims will be handled with efficiency, speed and courtesy. No worry for you. No bad feeling left over.

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plish this, our downtown streets would be the scene of the worst traffic jam ever seen anywhere. If this opinion is correct, our expressways may hurt, rather than help, our downtown areas by making it easier to get to more distant shopping centers.

I can see only two solutions. Either provide much expanded parking facilities plus a street system not yet conceived, or devise a mass transportation system that will satisfy the people. If either of these is done the expressways as now planned will be inadequate, incorrectly located or unnecessary.

C. H. NEWLIN
Charlotte, N. C.

Who's to Test?

SIR—The Architect-Engineer Committee of the American Council of Independent Laboratories wishes to thank you for the support you have given to the policy that testing laboratory services should be selected by the architect-engineer and not the contractor.

For the past several years, ACIL has devoted much effort toward correcting the unsound procedure whereby specifications written for the owner's protection also make it mandatory for the contractor to select and pay the testing laboratory.

We particularly wish to express appreciation for your latest editorial on the subject (ENR Apr. 28, p. 116). However, some laboratories are confused about the last sentence of this article ". . . and last but not least, they will find the fees for field inspection a welcome source of income." One inference from this is that architects and engineers should discontinue the use of field test and inspection duties now performed by laboratories and take over this work themselves to increase their fees. In our opinion project costs would materially increase if architects and engineers duplicated existing available laboratory equipment, facilities, and trained personnel for field testing and inspection services. In addition, this would place them in competition with the laboratories, which would not be a healthy situation.

We do not believe this is the intent of the last sentence of the article mentioned. However, since there is some confusion on the part of some laboratories on this point, we will sincerely appreciate an expression or some clarification from you.

E. F. HARDER, *Chairman*
Architect-Engineer Committee
American Council of Independent Laboratories
Washington, D. C.

• **Editor's Note:** The April 28 editorial made two points: 1. That contractors should not be required to select and pay for testing and inspecting services. 2. Designers should supervise the inspection of the field work on their projects. Last sentence referred to the second point, not to testing laboratories.

Yesterday at 3:03
MacLeod & Co.

Went out of business

(it could happen to you... TODAY!)

At 3:03 p.m. yesterday this clock stopped.

So did plant elevators . . . one of them mid-floors, with Mac Leod in it. Lights went out . . . computers, tabulators and typewriters "died" . . . critical plant equipment stood useless. Pumps handling continuous-flow processing coughed to a halt . . . and in the laboratories, a crucial experiment requiring weeks of costly preparation was hopelessly sabotaged.

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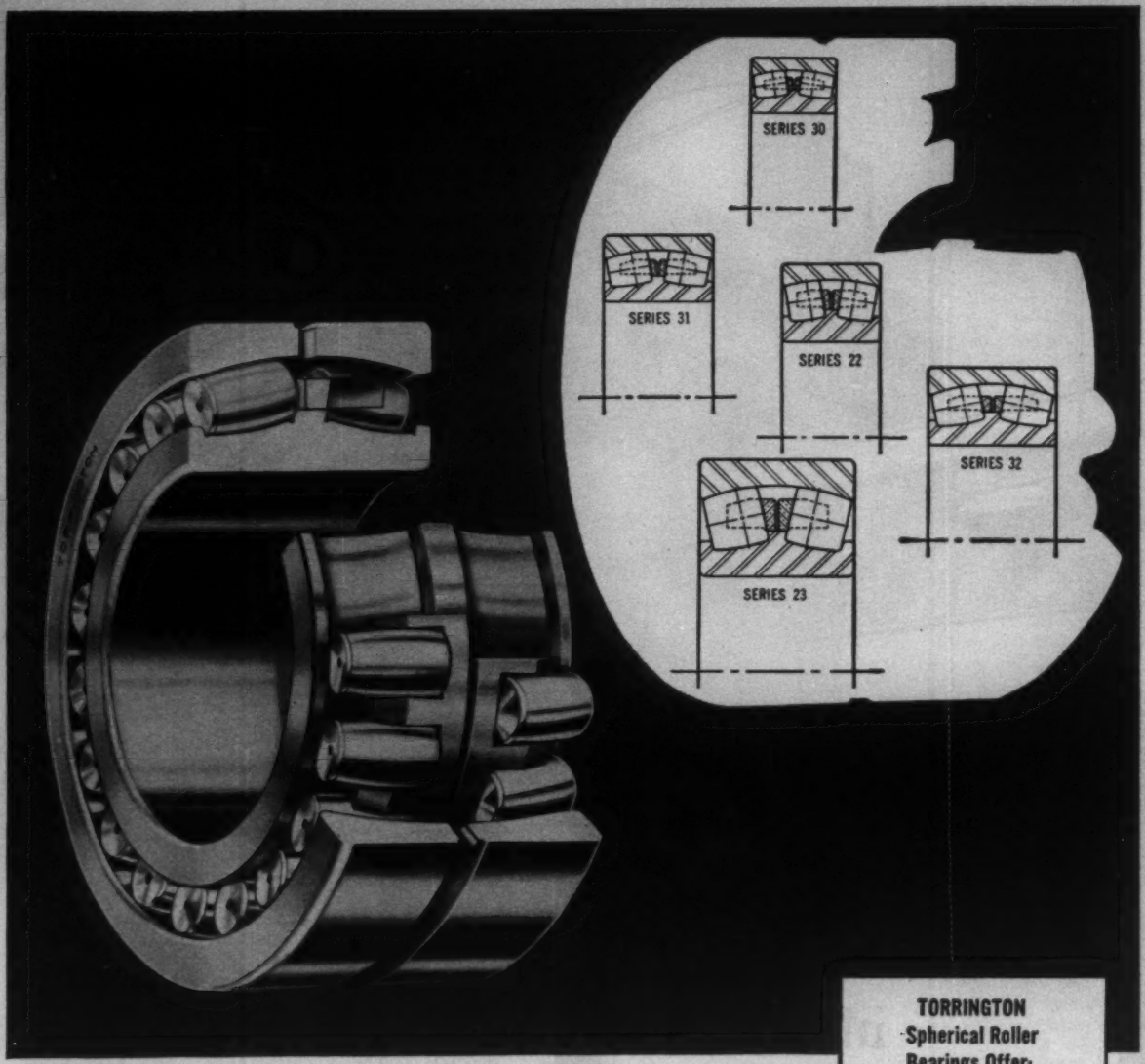

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CONTRACTOR: Reinertson Construction Co., Inc., Miami

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THE CONSTRUCTION WEEK

JUNE IS BUSTING OUT ALL OVER—Another big week of new business for contractors brings the total awards for just the first two contract weeks of June to $1.130 billion. Contractors will score a new record for the month of June if work continues to come in at this rate.

RAPID TRANSIT FOR ATLANTA?—A recommendation that Atlanta develop some kind of rapid transit system is expected to come out of the Georgia State Highway Department's survey of the city's transportation problems. High-speed electric trains for commuters may be the answer, hints the head of the Atlanta Transit System.

BONDING TOGETHER—California's Governor E. G. "Pat" Brown brought his personal prestige, influence and charm to bear on a group of top contractors at a private dinner party recently in an exclusive Los Angeles club. Result is formation of a contractor committee to marshal industry support for the $1.75-billion Feather River Project bond issue, which comes to a vote in November. Heading the committee is former AGC president John MacLeod of Macco Corp.

FUN HAS VALUE—A more favorable benefit-cost ratio of Corps of Engineer and Bureau of Reclamation projects would be the result of a Senate committee amendment to this year's rivers and harbors authorization bill. The amendment would allow assigning up to 10% of a project's cost to recreational benefits. A "pork barrel" bill in the neighborhood of $1.5 billion is a sure thing; chances for the amendment staying with it are good.

COAST DESALTER COOKS WITH GAS—Point Loma, Calif., will be the site of Office of Saline Water's seawater conversion plant—but natural gas instead of atomic energy will supply the heat. Fluor Corp., Los Angeles, has designed and will build the plant.

SHORTER RUNWAYS?—The advance of air technology up to now has meant bigger, heavier, faster planes and, for construction, longer runways. Now a new air brake developed by Lockheed may point to shorter runways in the future. It cuts the runway requirement of Lockheed's 50-ton C-130 turbo-prop transport in half for take-off and by two-thirds for landing.

ICE HARBOR COOL TO SWALLOWS—Engineers at Ice Harbor Dam wish the swallows would go back to Capistrano and leave them alone. The dambuilders, who are installing gate guides and sealers in the high spillway bays, must compete with thousands of winged constructors. The birds find the concrete for the gate mechanisms ideal for their mud huts.

Another progress report on Ryerson post-tensioning service

New maintenance apron taxiway at the Naval Air Station in Lemoore, Calif. Owner: U. S. Navy. Architect & Engineer: Porter, Urquhart, McCreary & O'Brien, Los Angeles. Contractor: Griffith Company, Los Angeles.

New prestressed slab at Navy Air Base is one of longest post-tensioned projects

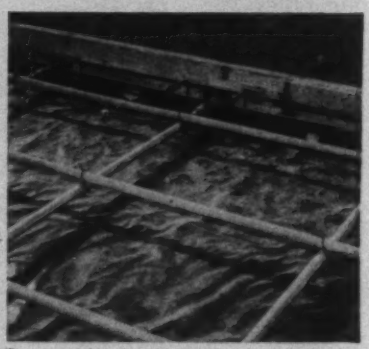
A new maintenance apron taxiway at the Naval Air Station in Lemoore, Calif., is a 512′ x 75′ *continuous ribbon of prestressed concrete.*

A complete "package" of materials and equipment for post-tensioning was furnished the contractor by Ryerson. Included are 30 tendons (each containing eight ¼″ wires) that extend the entire 512′ length of the slab . . . and 205 tendons (with six ¼″ wires) that run the width. This means a tendon every 2½′ in both directions. Stressing force of 150 psi was applied to the slab. Special anchor heads for these tendons, plus stressing and grouting equipment, were also supplied by Ryerson.

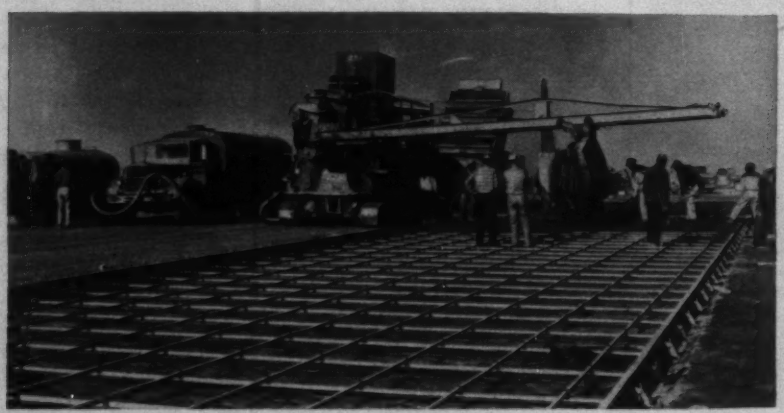
The concrete is 6″ deep in the 312′ x 25′ center section, and tapers to 9″ at the edges. If the concrete had not been prestressed it is estimated that a uniform depth of 12″ would have been required to provide equal strength.

Post-tensioning also brought these important advantages: (1) It completely eliminated the need for troublesome transverse expansion joints. Should the concrete crack for any reason, it will immediately seal itself *watertight* because of tensioning. (2) No wire mesh was needed. (3) Re-bars were required only around the edges where load is concentrated.

The taxiway was constructed by Griffith Company of Los Angeles, under the supervision of the U. S. Navy Bureau of Yards and Docks. Captain V. C. Bertelsen CECUSN, Resident Officer in charge of construction.



Close-up of post-tensioning tendons. Note that re-bars are only required along edges of slab at top of picture.



Pouring concrete at one section. Post-tensioning tendons are spaced 2½′ apart in both directions.

This is just one more example of the growing use of post-tensioning for prestressed concrete construction, and of the growing reliance on Ryerson for post-tensioning materials, equipment and know-how. On *your* next project, call your nearby Ryerson plant for details on *any* of our products and services for the construction industry.

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• How the road pie is sliced

• **The states this week are finally in possession of their highway allocations** from the Bureau of Public Roads for the fiscal year beginning July 1.

The total now comes to nearly $2.9 billion, up more than 7% from the $2.7 billion allocated last year. Totals for each state are arrived at by figuring the individual state's share under the ABC and Interstate programs—but the states are allowed to obligate this money for either ABC or Interstate roadbuilding, since the rate of construction progress on the two systems varies from state to state.

Because of a special aid-to-highway construction program Congress passed back in 1958, the total allocation actually is about $50 million less than the states would otherwise have gotten. That law provided $400 million in special allocations to ABC road construction, to be matched by the state at the ratio of one dollar for every two federal dollars, instead of 50-50 matching. The states were allowed to borrow their share of this construction money from the Highway Trust Fund. In this week's allocation BPR is holding back half of the $103 million the states borrowed; the other half will be taken out of allocations for fiscal '62.

The total figure and the state-by-state share may be revised sometime in the future as BPR gets a better look at what the economy produces in tax revenues for the fund. The $2.9-billion figure for fiscal '61 is right in line with earlier estimates of what the allocation would be at this time.

The allocation to the states will be made in equal quarterly installments. Here is the state-by-state breakdown:

(add 000)

Alabama	$53,360	Nebraska	$43,894
Alaska	36,653	Nevada	22,572
Arizona	36,001	New Hampshire	14,338
Arkansas	30,435	New Jersey	76,510
California	235,584	New Mexico	33,549
Colorado	27,842	New York	145,758
Connecticut	30,634	North Carolina	52,574
Delaware	19,160	North Dakota	17,199
Florida	61,991	Ohio	154,588
Georgia	64,006	Oklahoma	32,710
Hawaii	3,912	Oregon	44,590
Idaho	29,917	Pennsylvania	116,579
Illinois	132,878	Rhode Island	13,399
Indiana	73,861	South Carolina	26,869
Iowa	35,263	South Dakota	33,136
Kansas	36,094	Tennessee	72,403
Kentucky	47,418	Texas	132,991
Louisiana	62,126	Utah	26,029
Maine	15,574	Vermont	21,075
Maryland	51,100	Virginia	94,821
Massachusetts	67,498	Washington	47,255
Michigan	103,608	West Virginia	32,343
Minnesota	56,273	Wisconsin	55,871
Mississippi	34,459	Wyoming	27,499
Missouri	75,660	Dist. of Col.	26,214
Montana	52,328	Puerto Rico	5,971
		Total	$2,873,613

How **protection in depth** helps cut compensation costs

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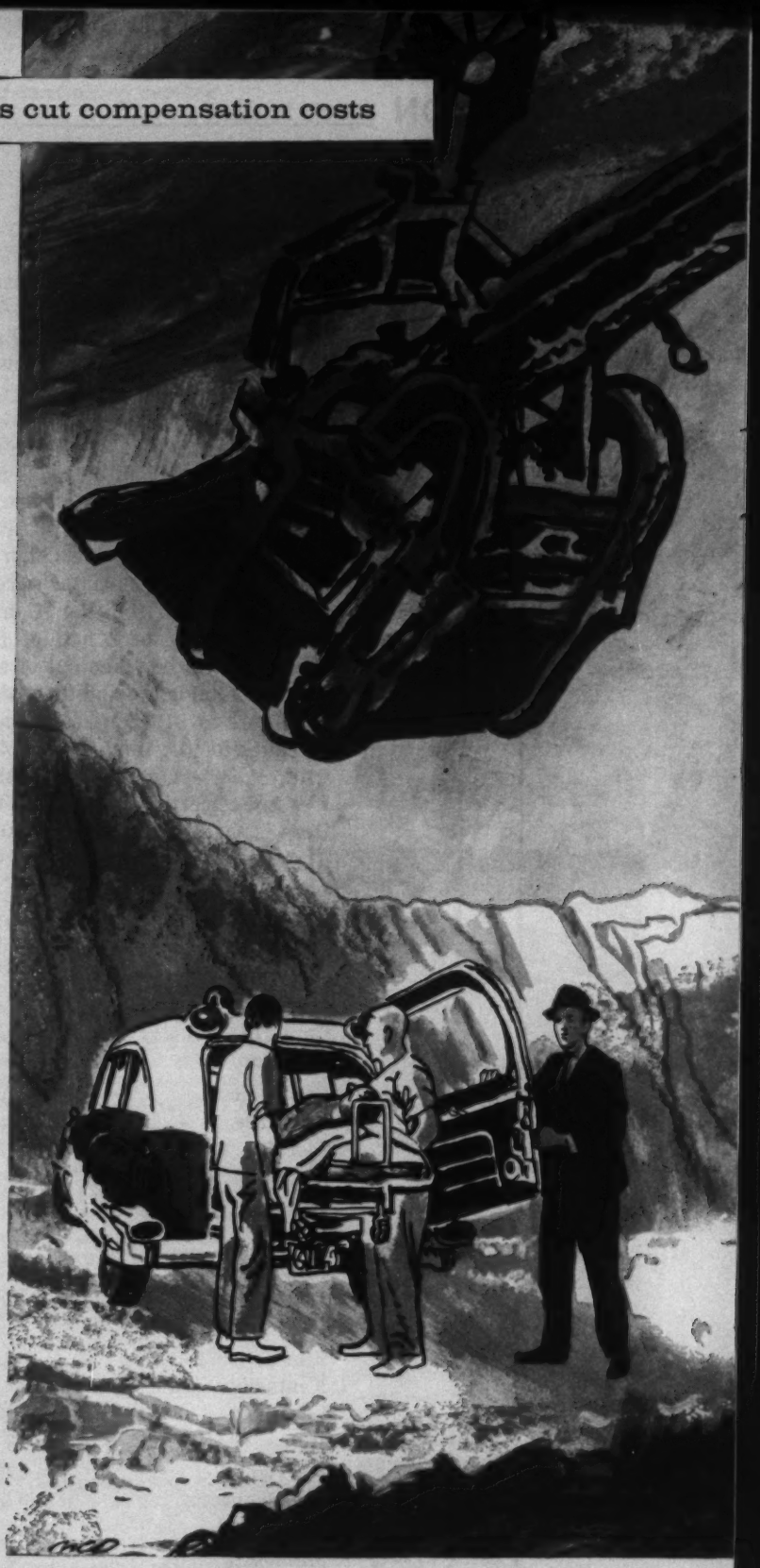

Quick help for your accident victims can save more than a life or a limb. It can also save you compensation premiums. Working out of 106 offices coast to coast, Liberty claimsmen act fast to see that your worker receives proper care. If necessary, consulting medical specialists are rushed to his hospital bed. A rehabilitation nurse begins her liaison with patient, doctor and policyholder to speed recovery. Detailed claims investigations are made while the facts are fresh. This thorough, emergency action is but one of the many Liberty Mutual services that add up to protection in depth. To learn more about Liberty's protection in depth and how it can help lower your business insurance costs, just get in touch with the Liberty Mutual office nearest you.

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What Foreign Aid Means to You

- **Almost one-quarter of the $4-billion aid bill now before Congress could eventually become work for U. S. engineers and contractors.**
- **The Development Loan Fund is becoming the key agency to watch as the emphasis switches from outright grants to loans.**

The construction industry, both in the U. S. and abroad, has an important stake in the fortunes of the $4-billion foreign aid bill, which has reached the critical appropriations stage in Congress.

Roughly $1 billion of the appropriation for fiscal '61 will finance projects involving a substantial amount of construction. A big chunk of that money will accrue to U. S. engineering and contracting firms.

This year, as in the past, the appropriations committees will probably cut the sums authorized for foreign aid. In both houses, the appropriations subcommittees for foreign aid are headed by longtime foes of the program—Otto E. Passman (D., La.) in the House, and Allen J. Ellender (D., La.) in the Senate. Representative Passman, for example, would like to see the $4-billion appropriation chopped by half. A cut that large would force the Administration to change the program radically, limiting aid only to a few key countries.

But despite these powerful political forces, it now seems likely that cuts will be held down enough to permit the program to go forward more or less on present lines. The uncertain international climate brought about by the collapse of the summit negotiations has created a counterforce to the two strategically placed legislators.

Two items in the foreign aid authorization are of particular significance for the construction industry:

- The $1.37 billion authorized for economic foreign aid to be administered by the International Cooperation Administration.
- The $700 million authorized for the Development Loan Fund.

• Trends in aid policy—Behind the figures, there are some current trends in foreign aid policy worth noting. The multi-billion-dollar deficit that the U. S. has been running in recent years in its over-all transactions with foreign countries—the "balance of payments" deficit—has forced a review of certain aspects of foreign aid policy. That's because aid expenditures for foreign goods or services show up as deficits in U. S. international accounts. In recent years such expenditures have been averaging somewhere around $600 million a year.

Shifts in policy to ease pressure on the balance of payments have been in three main directions.

• The Administration has pressed the industrial nations of Western Europe and Japan to take on a bigger share of the job of financing economic growth in underdeveloped areas. The response so far has been limited, partly because Britain and France already are investing in underdeveloped areas a percentage of their resources almost equal to that being put in by the U. S. There are hopes, however, that West Germany and, to a lesser extent, Japan and Italy will step up their financial assistance in the years ahead. The hoped-for increase in assistance from other industrial nations to underdeveloped countries is not seen as a way of cutting U. S. economic assistance; rather, it is seen as limiting the extent to which the U. S. would have to increase such aid in the future.

• An effort is being made to tie economic aid expenditures to purchases of U. S. goods and services. The Development Loan Fund has adopted a formal policy of requiring its loans to be spent in the U. S. in the future, except in exceptional circumstances. The theory is that if India, for example, prefers for price or quality reasons to procure equipment in Germany, the Germans now are in a position to finance such sales. ICA still has not adopted this policy, since much of its financing is of a political or emergency character, making it unlikely that other nations would be willing to take it over. But both ICA and the Development Loan Fund are putting increasing emphasis on financing privately owned enterprises abroad and on participating with American and other private foreign investors in underdeveloped countries.

• There is continuing emphasis on loans rather than grants in the foreign aid program. The Development Loan Fund, for instance, makes only loans for foreign projects. However, because most of its loans are repayable in local currencies, congressional critics charge that they are merely disguised grants.

• Construction's stake—A closer look at the programs and plans of ICA and DLF shows up more clearly both the importance of their operations for construction around the world and also specific implications of broad trends.

ICA's direct role in stimulating construction abroad is on the decline. Increasingly, DLF is taking over the job of financing major development projects, leaving ICA the task of providing recipient nations with raw materials, consumer goods, equipment of various kinds and direct financial support for budgets of underdeveloped allied nations over-strained by abnormally large military requirements. During fiscal year 1959, about one-fourth of ICA's total expenditures went for specific development projects. This fiscal year, although the data are incomplete, the proportion will be somewhat less and it is estimated that in '61 the proportion of project type assistance may drop below 20% of the total—although this obviously will be affected by action on the foreign aid appropriation.

Beyond that, only a part of the financing made available by ICA for individual projects goes into projects involving substantial construction. Many of the projects the agency supports are in the fields of agriculture, public health, industry and mining. ICA's role is declining in financing major transportation and power projects, which involve heavy construction costs. Again it is DLF that is taking up the slack.

Some of ICA's technical assistance programs, however, do generate construction indirectly. A good example is the community water supply development program initiated last year by ICA's Office of Public Health. This program plays a catalytic role in generating construction and illustrates the agency's efforts to encourage private enterprise and initiative.

(*Turn the page*)

It is basically an educational program. ICA field engineers preach the doctrine that potable water brought to the user in pipes instead of in water carriers' jars is the basic necessity for a healthy population and for economic growth. Once this is done, ICA sanitary engineers turn their attention to advising on the organization of a soundly financed and administered water department and to counseling on the development of personnel.

The program was started last year with an appropriation of only $1 million, and thus must be one of ICA's smallest. For fiscal 1961, $2.1 million was requested to carry the program into more countries where increased health and economic well-being would have a direct bearing on U. S. and world security. As was the case last year, some $300,000 of the fund would be administered by the World Health Organization, about $200,000 by the Pan American Health Organization and the remainder by the ICA headquarters and field staff in its Office of Public Health.

In contrast to ICA, roughly three-fourths of the loans made by the Development Loan Fund have been for projects involving major engineering and construction work. Thus of the 116 loans totaling $958 million approved as of January this year, 35 loans totaling $299.3 million were for transportation and communications projects, 15 loans totaling $180.8 million were for power projects, five loans totaling $29.6 million were for water supply projects. In addition, the $300.6 million loaned for industrial, mining, and general economic development directly or indirectly will generate a considerable amount of construction.

DLF officials understandably are wary of commenting in detail on their future plans since these will be determined by the appropriations voted by Congress. Plans on the books now might have to be cancelled if Congress cuts authorized funds deeply. If these tentative plans were made public now, disappointment and bitterness would result in recipient countries should DLF be forced to cancel loans for given projects.

Some general trends in the pattern of DLF lending are becoming clear, however, and would be upset only by a drastic cut in the appropriation.

The trend towards increased DLF lending to private enterprise and in participation with private investors will strengthen. About 32% of DLF lending so far has been primarily for the benefit of private enterprises and about

Where Foreign Aid Becomes Construction . . .

*($3 million or more)

Country	Project	Amount of Loan or Grant in $ Millions
INTERNATIONAL COOPERATION ADMINISTRATION		
Vietnam	Modernization National Route No. 1. Contractor: Johnson, Drake, and Piper	30
Korea	Design, Engineer—Contruction of Fertilizer Plant. Contractor: McGraw-Hydrocarbon	33
Taiwan	Construction Design for Shimen Reservoir. Contractor: Morrison-Knudsen	19
Afghanistan	Construction Kandahr Airport Contractor: Morrison-Knudsen	4
Thailand	Construction Roads and Bridges. Contractor: Raymond International	9
Taiwan	Engineering of Power, Transportation, Public Works, Industrial Projects. Contractor: J. G. White Engineering	3
DEVELOPMENT LOAN FUND		
Libya	Tripoli Power Plant	5
Morocco	Mechra Klila Dam	23
Sudan	Textile Plant Khartoum	10
Tunisia	Pulp Factory	6
Spain	Earthmoving Equipment for Land Reclamation	7.7
Spain	Power Plant and Dam on Tagus River	3.9
Yugoslavia	Kosovo Power Plant. Contractor: Gibbs and Hill	9
Yugoslavia	Trebisnjica Hydroelectric project	15
Indonesia	Port and Harbor Development	6
Malaya	New Deep Water Port in North Klang Straits	10
Malaya	Roads and Bridges	10
Philippines	Roads and Bridges	18.6
Philippines	Cement Plant	3.7
Taiwan	Shimen Dam	21.5
Vietnam	Saigon-Cholon Water Distribution System	19.5
Argentina	Railways and Highways	24.8
Ecuador	Pan American and National Highways	10
Honduras	Highway Development	5
Peru	Aguaytia-Pucallpa Highway	4.5
Greece	Acheloos Hydroelectric Project	31
Iran	Municipal Development, Roads, Sewage, Water Supply	9
Iran	Highway Development	33.5
Iran	Railway Terminals	3.6
Iran	Airport Improvements	7.7
India	Sharavathi Hydroelectric project	8.
India	Thermal Power Station, Damodar Valley	30
India	Railway Development and Improvement	7
India	Public Power Projects	10
Pakistan	Karachi Water and Sewage System	5
Pakistan	Karnafuli Multi-Purpose Hydro Project	17.
Pakistan	West Pakistan Water Development	15.
Pakistan	Karachi Commercial Jetstrip	4.
Pakistan	Railway Rehabilitation (depots and equipment, rolling stock)	31
Pakistan	1,800 Tubewells	15.2

16% has been directly to private borrowers or intermediate credit institutions. Those percentages are almost certain to increase in the year ahead.

While much of the lending in the private sector is for small- or medium-sized industrial enterprises, and hence does not generate much construction, this is not always the case. DLF, for example, is now considering participating in one huge private industrial project in a middle eastern country. Total investment in this project will run to hundreds of millions of dollars. The project involves a great deal of construction, not only of industrial buildings but of access roads, utilities, port facilities and the like.

The geographical distribution of DLF's lending may shift somewhat in the period ahead. Until now South Asia has received the lion's share of DLF assistance—35% of loans totaling $195 million have been approved for India alone. The Near East has come second and the Far East third in order of importance. South Asia will continue to be the largest recipient—DLF's projected $70-million contribution to the Indus River development program plus the gentlemen's agreement to step up assistance to India's third five-year plan in themselves will assure that. But it is likely that Latin America—which as of January had received only $77 million worth of DLF assistance—will get more help in the immediate future, at least until the new Inter-American Bank gets into full-scale operation.

DLF's new policy of financing procurement of only American goods and services except in unusual cases may have some significance for the U. S. construction industry although it is too early to say how much.

Approximately half of DLF's loans to date have required the procurement of engineering services outside of the borrowing country and roughly one-fourth of the agency's loans have involved engaging contractors abroad to do the actual construction.

The reason why it is hard to estimate the impact of the new "Buy American" policy is that in the past the agency for reasons of practical convenience has made a practice, where possible, of urging borrowers to retain U. S. engineering and construction firms. Furthermore, on heavy construction jobs, U. S. firms often tend to be competitive with foreign firms if only because they frequently can finish a job faster.

Another offsetting factor in estimating the effect of the agency's new policy is the fact that many underdeveloped countries gradually are developing competent engineering and construction industries of their own. India, for example, is relying less and less upon foreign engineers and contractors for all but highly specialized types of projects.

Aluminum producer and homebuilder team up for . . .

$250-Million Renewal Job

The Philadelphia Redevelopment Authority has chosen an aluminum company and two Philadelphia builders to construct the $250-million Eastwick project in southwest Philadelphia.

Reynolds Metal Co., Richmond, Va., and Samuel and Henry Berger will build more than 10,000 new houses, an industrial park and commercial areas on the 2,506-acre tract.

The Reynolds company has already been chosen for urban renewal projects in Washington, Cincinnati, Kansas City, Mo., and Kansas City, Kan. The Bergers, brothers, have built hundreds of homes in the Philadelphia area in the past 10 years.

Reynolds, which will furnish the working capital for the project, is interested not only in development work, but in popularizing aluminum, its principal product.

William L. Rafsky, director of the Redevelopment Authority, says that under the terms of the agreement Reynolds-Berger will buy Eastwick land from the authority at a price to be determined by appraisal picked by the authority.

The cost of acquiring the land and preparing for building was estimated at $100 million. The city is expected to recover about $45 million of original cost from sale of the prepared land to the private developers.

Eastwick has for years presented problems to the city. Much of it was swampland, flooded over periodically. There were some good houses on high, dry ground, but also poor ones, even squatters' shacks. The area included neat gardens and also junk yards. The city began filling and demolition work last summer. This is one of the last large areas left in the city where land is available for a large-scale redevelopment project.

Construction work will begin next year. The Redevelopment Authority predicts the project will take 10 years to complete.

Constantinos Doxiadis, Greek architect and city planner, will design the Eastwick community. The homes will sell for $11,000 to $14,000 depending on their size.

The Doxiadis plan envisions a series of residential sectors of "superblocks" connected by a central greenway along which community facilities will be built. Pedestrians will be able to go to all parts of a superblock without running into heavy traffic. Spine streets will carry major traffic around the residential sectors and small streets will lead into the interior.

Under terms of the contract, the developers will have to devote at least 1% of construction outlay on sculpture, bas-relief, mosaics, frescoes, murals and fountains. A greenbelt will shield the residential and shopping areas from the industrial park.

Three sets of prospective redevelopers submitted bids for the Eastwick project last September. In January the Redevelopment Authority rejected the individual bids and asked that the three bidders pool their plans and resources to produce a plan superior to that of any of the three. Nothing came of this.

One of the three bidders, McCloskey Industries, Inc., which included the big Matthew H. McCloskey Co., Philadelphia contractors, withdrew because of other construction commitments.

The authority then negotiated with Reynolds-Berger and Philadelphia Builders Eastwick Corp., a group of 10 Philadelphia building companies. The authority finally selected Reynolds-Berger, but not unanimously.

The federal government found Eastwick eligible for financial assistance under Title I and pledged a grant of $22 million. Since the net cost of acquiring and clearing the area was forecast as $54 million, there was still a gap of more than $32 million the city was required to put up. This amounted to more than the one-third matching funds required of cities under Title I, and Philadelphia has been given credit for more than $20 million of local expenditures to be applied on other projects.

Coast Desalter Called Largest and Cheapest

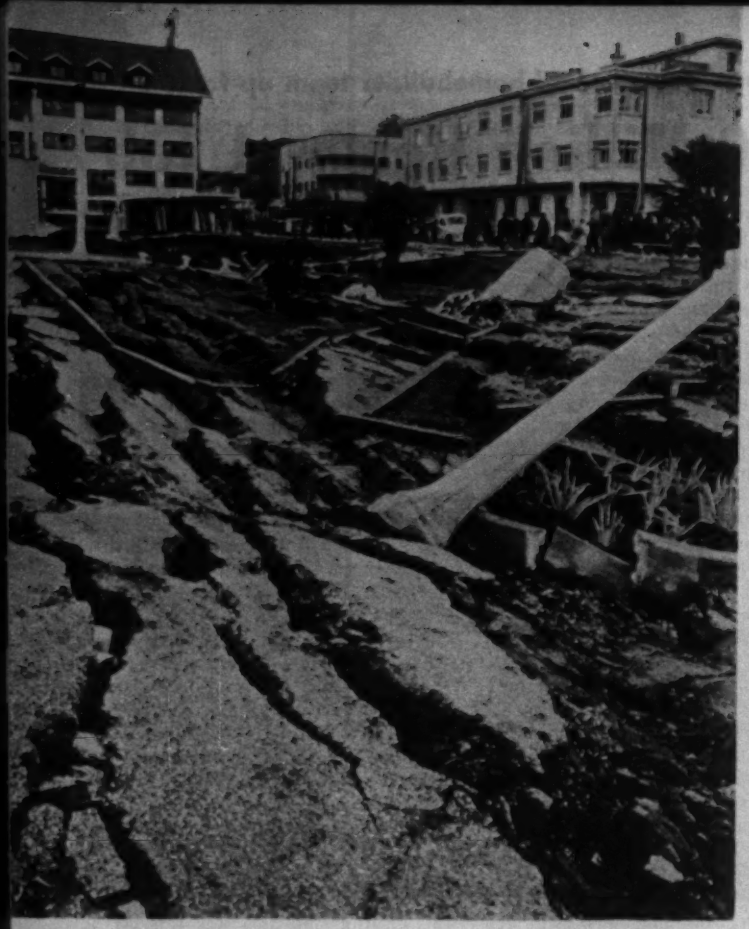
Oxnard, Calif., is testing an electrodialysis desalting plant that is said to be the largest and least expensive brackish water converter ever to be operated in this country.

Ionics, Inc., Cambridge, Mass., designers and builders of the equipment, claim product water, at the rate of 250,000 gpd, will cost the city 20 cents per thousand gallons—about a quarter of the price Office of Saline Waters expects to charge at their brackish water conversion plant at Webster, S. D. (see p. 41).

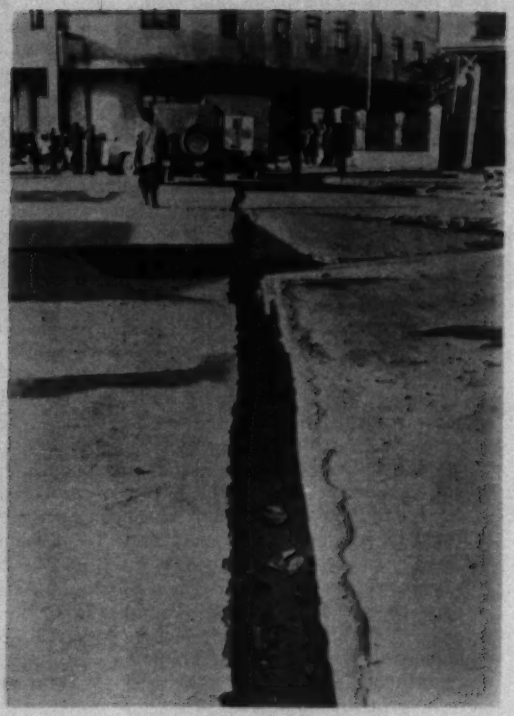
The continuous test, to last for the next several months, is aimed mainly at improving the quality of the highly mineralized well water now supplying the city.

Ionics says the desalter is reducing total dissolved mineral content of the water from 1,300 ppm to 800 ppm.

Chile:



In Puerto Montt, tremors tear up the city park . . .



and rupture street pavements.

Settlements twist rail lines.

In Valdivia, older buildings suffered the worst damage.

Poor Foundations Add to Failures

Detailed reports on structural damage have started coming out of Chile's shattered central provinces following a week of almost continuous earthquake tremors, landslides and quake-caused waves (ENR June 2, p. 22).

Lack of complete subsoil investigations before construction apparently accounted for many of the cases of structural failure in modern buildings that weren't destroyed directly by landslides or ocean wave action. Most structures built recently stood the record-size earth tremors well, but despite substantial allowance for seismic shock in superstructure design, poor soil conditions triggered collapses when the earthquakes hit.

The Hotel Turismo in Puerto Montt —eight tower floors rising from one side of a ground floor and cellar base—failed when the large one-story section sank 4 ft at one side of the hotel due to an earthfill settlement. When the base section shifted and sank, it "folded" the substructure of the tower, though the upper floors remained intact.

In the same city, the port installations slipped completely underwater.

The hospital at Valdivia, built with a reinforced concrete frame, was severely damaged on six levels but did not collapse as originally reported.

In Concepcion, an elevated, 5,600-gal-capacity water tower dropped when joints between the tank and reinforced concrete columns gave way.

A 2,250-gal-capacity tank, also of reinforced concrete, collapsed when its single 5-ft-dia, 70-ft-high column separated from the foundations. The tank apparently held at the column's top.

Nine hundred feet of dike at Talchuano, the naval base area north of Concepcion, slipped from its base and sank 4 ft. The earthfill behind cracked parallel to the dike line and followed it into the water. Cause: insufficiently dense subgrade material.

South of Concepcion, the Bio-Bio River Bridge looks like a staircase. Several spans slipped off their piers at one end only, dropping to the river bed intact due to earthslips.

Smaller reinforced concrete bridges that extended over their abutments at each end remained undamaged. Several others designed with point bearing only came down in the series of tremors.

Enrique Rome, consulting engineer of the Public Construction Ministry, commented that structures made according to the National Construction Ordinance behaved well despite the severity of the earthquakes. However, he noted that where no previous ground investigation was made and in some places where reports apparently weren't followed, structures gave way.

O. R. Charlin, chief of the Architectural Department of the Public Construction Ministry said that principal causes of major damage to modern structures due to the great intensity of the quakes, were from construction on earthfills and weakness of ground substructure.

Red area marks the destructive inroads of quake-caused wave.

Hawaii: Wave Beat Dike Plans

The City of Hilo, Hawaii, may have turned the other cheek to Mother Nature for the last time.

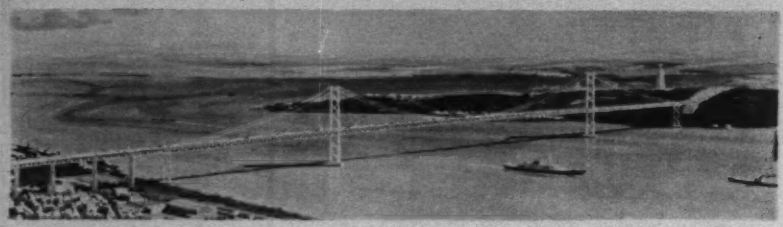
The May 23 tsunami, giant waves caused by the Chilean earthquakes, all but demolished the city's seaside business district. Ironically, the Corps of Engineers was just wrapping up a study of a seawall it claims would have prevented 90% of the damage—estimated at between $25 million and $60 million.

The seawall—talked about since 1946, when a similar wave swept down from the Aleutians causing $25 million in damage—has renewed interest in another project—an earthfill lava dike, also talked about for many years. Hilo lies vulnerably at the foot of erratic old Mauna Loa, an active volcano that only last winter sent lava spewing down its slopes (ENR Feb. 11, p. 25).

The proposed seawall would follow the beachline and shield the city from the direct onslaught of the sea. An earthfill embankment, 22 ft high, the dike would have a stone facing on the seaward side. An authorization of $7 million for the seawall is included in the omnibus rivers and harbors bill unanimously approved by the Senate Public Works Committee.

An alternate plan, which would cancel out the seawall proposal, is to relocate the city on higher ground.

Cable-supported cantilever design loses out to . . .



. . . conventional suspended span in contract award for . . .

Europe's Longest Suspension Span

The Portuguese government has approved a provisional award for a suspension bridge over the Tagus River at Lisbon to United States Steel Export Co. of New York City. With a central span of 3,317 ft, it will be Europe's longest suspension bridge. Value of the award is placed at $61,740,000.

Fabrication of the principal structure will be by American Bridge Division of U. S. Steel Corp. Main bridge piers will be built by Morrison-Knudsen Company, Inc., Boise, Idaho. D. B. Steinman, New York consultant designed the bridge. Other leading contractors and engineers will participate as suppliers, subcontractors or consultants.

Financing of the project will come entirely from outside Portugal, with loans to be made by the Export-Import Bank and by Seligman & Cie of Paris. The latter will participate to the extent of 85 million new French francs ($17,347,000), which will be used for local expenditures in Portugal.

Announcement of the provisional award climaxes competition (first announced in April, 1959) to design, build and finance the bridge. In addition to the U. S. Steel combination, three groups submitted proposals to the Portuguese government. The other three bidders were Demag of Germany, which stipulated that the Portuguese government would have to finance the work; Krupp of Germany, with Merritt-Chapman & Scott Corp., contractors: and Parsons, Brinckerhoff, Quade & Douglas as engineers: and with financing sought through Blythe Bros. Co.; and a Portuguese firm (Socieda Atlantico Portuguese de Empreesamentos y Expanso Economica) with international participation and backing.

The latter combine submitted the apparent low proposal (ENR Mar. 24, p. 146) for a structure incorporating four cable-supported balanced cantilevers placed end-to-end. American firms involved in that proposal included Moran, Proctor, Mueser & Rutledge, New York City; Richardson, Gordon & Associates, Pittsburgh; and Ammann & Whitney, New York City.

The U. S. Steel group will build a conventional suspension bridge with a total length of 6,397 ft. Each side span will be 1,540 ft long. The two towers will be about 755 ft above their rock foundations, and some 626 ft above mean water level. Minimum clearance at midspan will be about 230 ft. The bridge will carry four lanes of highway traffic, with a center dividing strip and a sidewalk on either side.

In addition to the bridge itself, the contract calls for approach structures and roads on both sides of the river. Total viaduct length is expected to be about 3,445 ft, with an additional 8.6 miles of approach roads.

Under the terms of the provisional award, U. S. Steel Export Co. has a maximum of 300 days to present its final proposal. The final contract will then be signed and will call for the bridge to be completed within 4½ years. The final proposal is expected to provide for future railroad traffic.

Engineers,

Sniping between Oregon highway engineers and a Portland downtown development organization over the location of a freeway will break into open combat next week at a public hearing.

The argument between the Oregon State Highway Commission and Downtown of Portland, Inc., is over the placement of a section of the city's Stadium Freeway, which will loop around the west side of downtown Portland on the left bank of the Willamette River. The $75-million Stadium Freeway will connect by way of two new bridges with the East Bank Freeway to encircle the downtown area (ENR Mar. 22, 1958, p. 24).

Two routes have been proposed. Both are the same length, about 1.2 miles. Both would be depressed freeways. And both can be designed to the federal Interstate standards. Both have had, in different degrees, the approval of the highway commission.

The highway commission now vigoronly backs a location known as the Foothills Route. This would follow the natural curve of the southwest hills that were the boundaries of Portland's original site.

Downtown Portland, Inc., a group led by Lloyd T. Keefe, former director of Portland planning, has been campaigning for the Market-Clay Route, which would be eight blocks closer to the center of town than the Foothills Route. Clay and Market are the names of streets between which most of the route would run.

The highway commission's construction division and urban studies section made design and feasibility studies of both routes. In a report issued last year they found that "on the basis of cost and other considerations, the Foothills Route appears more feasible." As additional support, the commission has the backing of the Bureau of Public Roads and it is generally admitted that the Foothills Route is $4 million to $4.8 million cheaper to build than the Market-Clay Route.

The commission's design studies claim that the ramp system of the Foothills Route could be designed to higher standards than that of the Market-Clay Route. The report suggests that the Market-Clay location would pour traffic into a crowded area suffering from congestion that would back onto the freeway.

DPI issued a report of its own, 82 pages long, prepared with the cooperation of the Portland City Planning Commission. After comparing the two routes, the report's conclusion is:

"The Market-Clay Route is superior

Planners Dispute Freeway Route

to the Foothills Route from the standpoint of traffic service, parking convenience, prevention of congestion, impact on property values, downtown solvency and relative costs when community as well as construction costs are considered."

The DPI and the highway commission have been recruiting supporters for several months.

A DPI presentation swung the Portland Chamber of Commerce to the support of the Market-Clay Route against the recommendation of the chamber's roads and highways committee.

Another articulate DPI friend is the Oregon State Board of Education. Traffic from the Foothills Route would enter a "buffer zone" that would disperse it before it entered the congested core area of Portland. The board sees the traffic bound to and from the Foothills Route as a hazard to student pedestrian traffic in the area of the rapidly growing Portland State College.

But the highway commission also has powerful friends. Among them are the Portland Realty Board, Portland's long-time traffic engineer, Fred T. Fowler, and a committee of engineers who made a special study of the two routes for the Portland Traffic Safety Commission.

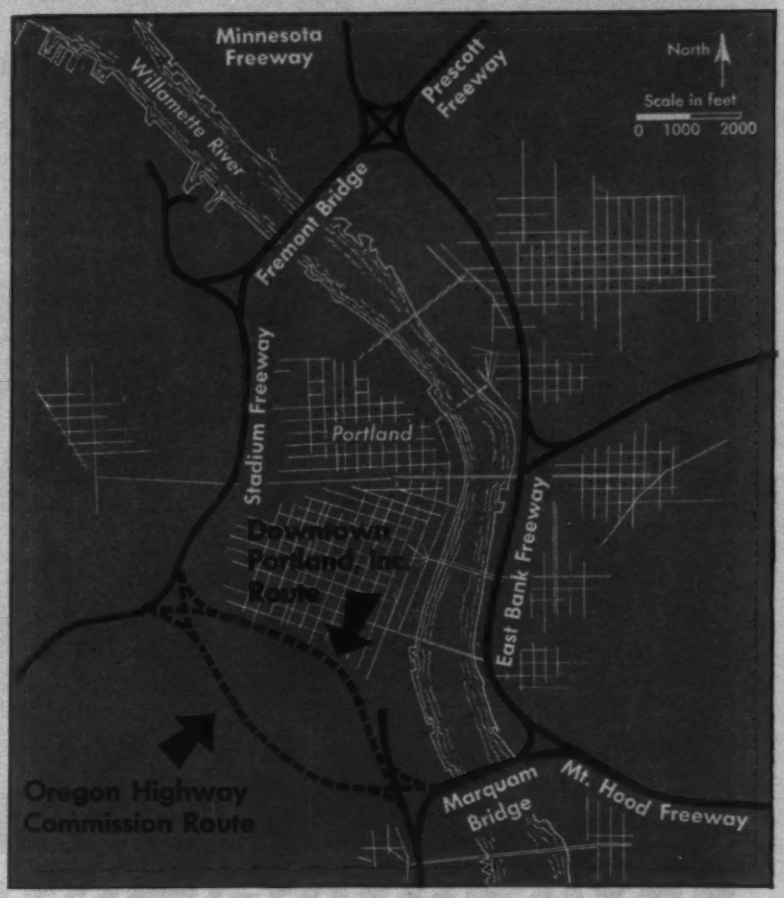
Some of the highway commission's main arguments are:

- Foothills would remove no existing parking facilities, but Market-Clay would take out three blocks now used for parking.
- Market-Clay would have to have vertical retaining walls through much of its length, limiting landscaping possibilities and increasing noise.
- Estimated non-reimbursable costs for utilities would be $910,400 on the Market-Clay Route and only $344,100 for Foothills.
- There would be fewer construction problems on the Foothills Route because fewer streets need to be kept open by detours.

One of the principal arguments of Mr. Keefe, DPI executive secretary, is that the Foothills Route doesn't fit into any comprehensive plan.

"It (acceptance of the Foothills proposal) would be like buying a cheap suit," says Mr. Keefe, who had eight years' experience as Portland Planning Director and a civil engineering background before he joined DPI last June.

"There is no evidence that its sponsors have researched, designed or proposed any type of plan to integrate the Foothills Route with parking, mass transit and pedestrian needs, urban renewal opportunities or property values and potentials," says the DPI report. "The Foothills Route is a detached and, perhaps, an expedient line on a map. . . . It can do Portland irreparable harm if constructed."



Proposed locations for part of Portland's Stadium Freeway.

DPI's long-term program envisions a $21.5-million assessment district project to build perimeter garages to be tied to the freeway loop. It is also concerned with plans for mass transit, mall development and any downtown convenience factors that will enable the area to fight off the threat of such developments as the $50-million Lloyd Shopping Center (ENR Feb. 20, 1958, p. 114) that will open August 1.

Built closer to the center of Portland, the Market-Clay Route and its proposed parking lots would better meet the demands of most motorists than the Foothills Route, says DPI.

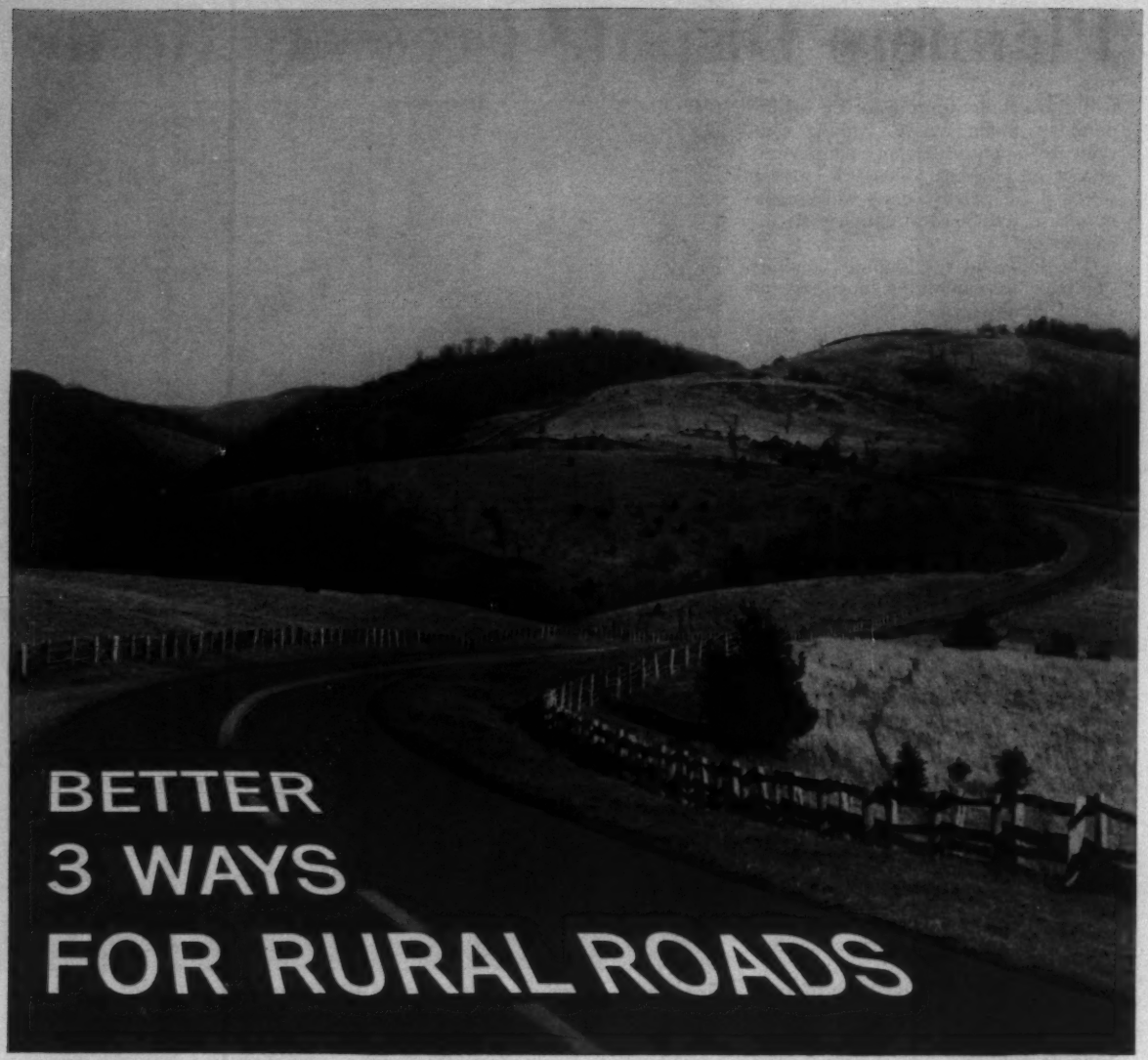
The Foothills choice would blight Portland's Westpark Development and the fast-growing Portland State College complex that is zoned for quality apartment development, claims DPI.

In 1955, before the Interstate program appeared, the commission indicated in its Portland freeways report that Market-Clay was the most likely for a freeway route west from Portland.

BOCA Relaxes Curbs On Building Areas

The Building Officials Conference of America has revised its Basic Building Code, a national model code, to ease slightly the limitations on the size of unenclosed building areas. The revision, based on favorable fire experience, will permit areas about 10% larger.

At its annual meeting in Miami Beach, Fla., BOCA reelected as president S. Logan McConnell, director of Regulatory Inspections, New Orleans; and as first vice president, Benjamin Saltzman, superintendent, Department of Buildings, Brooklyn, N. Y. Second vice president is A. P. Backhaus, director, Department of Public Improvements, Maryland.



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Congress Ups Military Construction

- **Authorization bill of $1.2 billion adds $43.2 million to Administration request.**
- **It calls for more Titan and Minuteman ICBM bases, but cuts Bomarc projects.**

Congress last week authorized $1.2 billion worth of military construction for fiscal 1961, starting July 1. August 60% of the amount is to build missile facilities.

The authorization bill passed by Congress exceeds the Administration's request by $43.2 million. Major changes voted by the lawmakers:

- Addition of a $90-million authorization to build facilities for two Titan ICBM squadrons and $21 million for the nation's first Minuteman ICBM squadron (see below).
- Deletion of $26 million for construction of Bomarc antiaircraft missile facilities.

The House will begin debate on a military construction appropriation to provide funds for the program shortly after the President signs the authorization bill.

Meanwhile, the House military appropriations subcommittee has already approved a construction money bill of $885.1 million for the upcoming year. This is $302.8 million below the Administration's appropriation request.

Largest appropriation cuts were made for Strategic Air Command underground combat operations centers, air defense control centers and Bomarc missile facilities.

In addition, $18.6 million was trimmed from the appropriation for construction of ICBM bases because (1) contract awards have been running below initial construction cost estimates, and (2) the Air Force has combined requirements for training and operational Minuteman launching silos.

Appropriations do not have to jibe with the $1.2-billion authorization bill since construction authorizations stay on the legislative books even though Congress fails to vote funds.

Aside from the new Titan and Minuteman bases added to the program, the Pentagon did not seek authority for new facilities. The authorization bill is aimed to expand and improve existing facilities. Involved are 477 major installations.

The authorization bill sets aside $143.6 million for the Army, $127.6 million for the Navy, $727.3 million for the Air Force, $20 million for the Defense department and $56.1 million for reserve forces.

Close to 50% of the Air Force construction authorization covers ICBM bases. Slightly more than $9 million is earmarked for completion of launching facilities for 13 Atlas squadrons. Included are funds to build three extra launchers for the last six squadrons (making the total 12 launchers per unit).

The Air Force asked for $206.4-million authority to complete construction or launching facilities for 10 of the 14 scheduled Titan squadrons. Congress added authority for two more squadrons.

Authority is provided for the first operational Minuteman ICBM facilities, amounting to $93.7 million. This includes the sum tacked on by Congress to the Pentagon's authorization request.

Over the next several years, construction of Air Force Minuteman ICBM bases will become the biggest military building program. This will be in terms of dollars spent and number of installations built.

Last week, the Pentagon announced that surveys on location of the first Minuteman squadron (in the area of Malmstrom AFB, Great Falls, Mont.) have been completed, that land acquisition will begin in July, and that the initial construction award will be placed next January.

Minuteman construction costs will run to $20 million per squadron. The Air Force plans to complete construction of the first unit within 15 to 18 months.

Facilities for three missile squadrons will be built in the Malmstrom complex. The first unit will have 55 underground launching silos—24 to be built in Judith Basin County, Mont., 23 in Fergus County, and eight in Cascade County.

Air Force officials say that the number of launching silos for the latter squadrons will not necessarily be the same as the first unit.

Roughly 10% of the Air Force authorization covers construction work on bomber bases—airfield pavements, maintenance facilities, underground combat operation, control centers and other facilities.

Of the Army's $143.6-million authorization, 23% is earmarked for construction of research and test facilities for the Nike-Zeus anti-ICBM system, 18% for antiaircraft missile launching and control facilities, and 9.4% for troop housing.

Major chunks of the Navy's $127.6-million authorization break down this way: $21 million for facilities to support the fleet and global communications systems; $19 million for troop housing; $16 million for airfield facilities; and $26.5 million for installations to handle nuclear submarines. (Congress added a $12.5-million authorization for construction of a drydock for Polaris missile subs at the Charleston, S. C., naval shipyard.)

Construction of family housing is sharply reduced in the new authorization bill. Authority was voted for 9,786 family housing units, compared to almost 24,000 units approved last year.

The $1.2-billion authorization bill approved by Congress is essentially a Senate version. The House trimmed $38.3 million from the Pentagon's request. The Senate then added $43.5 million to the request before the final authorization bill was sent to the White House.

Walter L. Huber Dies; Noted Western Consultant

Walter L. Huber, 77, consulting engineer of San Francisco, died May 29 of a heart attack.

A noted structural and hydraulic engineer, Mr. Huber had maintained his original consulting office without interruption since 1913.

The San Francisco earthquake of 1906, following close on Mr. Huber's graduation from the University of California, afforded him many assignments in the reconstruction of the city. That kindled his interest in earthquake-resistant construction, and caused him in later years to become one of the nation's most eminent authorities in that field.

Mr. Huber's practice covered both structural and hydraulic problems for both public agencies and private clients. The structural designs for many of San Francisco's office buildings were his work, as was the Union Square underground garage. He was a consultant on California's Central Valley Project, for irrigation districts and on Corps of Engineers' flood-control structures in the state.

Mr. Huber was also instrumental in initiating and drafting the California State Dam Control Act.

Mr. Huber was active in the American Society of Civil Engineers and served as president in 1953.

New River Tunnel in Fort Lauderdale is a Florida first.

Welded ¼-in. plate makes . . .

Anchors

A long, wide ribbon of steel plate and two sets of grouted anchors—more than 7,200 of them—play an important role in the construction of Florida's only vehicular tunnel.

The steel ribbon is a 66-ft-wide, 1,600-ft-long waterproofing membrane that lies between the tremie seal and the floor of the New River Tunnel at Fort Lauderdale. The anchors include some 4,100 hold-downs for the tremie slab and about 3,100 dowels connecting the tremie slab and the tunnel floor.

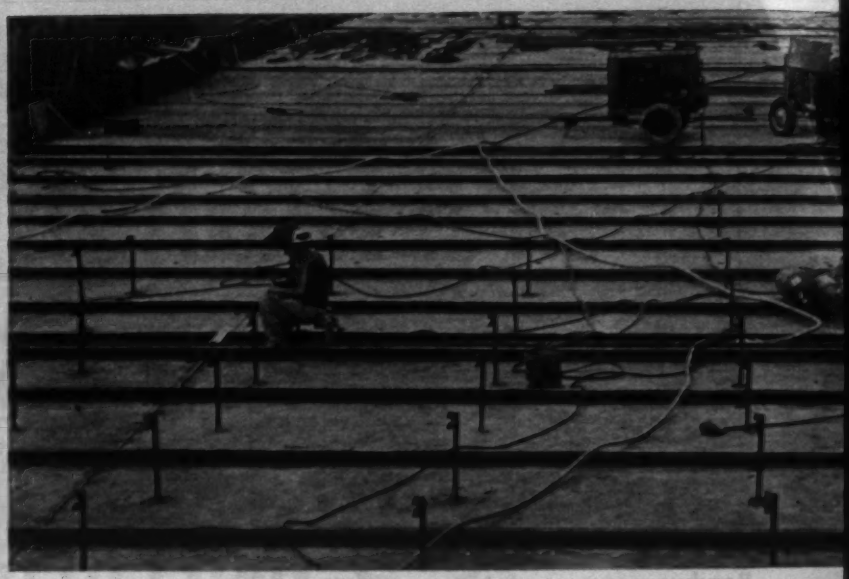
Without the plate and anchors, the New River Tunnel would have required a tremie slab up to 40 ft thick—with them, the slab was cut to 4 ft. Their use saved more than 90,000 cu yd of sub-aqueous excavation, 90,000 cu yd of tremie concrete, and 75,000 sq ft of steel sheetpiling.

The New River is not very big. At the tunnel crossing it is less than 200 ft wide and no more than 25 ft deep. However, it is navigable and is crossed by U. S. Rte 1—a main north-south highway extending down the Atlantic Coast from the Canadian border to the Florida Keys. Until a year and a half ago, a swing bridge served the Rte 1 traffic, but it was not satisfactory.

Vehicles, often long delayed by the open swing, snarled Fort Lauderdale's traffic.

The need for a new crossing was acknowledged by both state and local officials for years before any action was taken. Principal deterrent was a statewide controversy as to whether the crossing should be a tunnel or a bridge.

husky waterproofing membrane.



Dowels anchor tunnel to tremie seal, tremie seal to rock.

Hold Down Tunnel Sealed in Steel

Relative construction costs, potential depreciation of adjacent property values and difficulties of tunnel construction were all points of difference.

Biggest argument against the tunnel (though not necessarily a valid one) lay in the fact that Florida had never before seriously considered building one. The state's flat terrain eliminates any need for land tunnels, and the low elevation (averaging less than 6 ft above sea level) poses complex and costly approach problems. This is very much in evidence on the New River tunnel, where almost 2,000 ft of open ramp and tunnel structure is required to cross a river only one tenth that wide.

When the debate was finally settled in favor of the tunnel, Singstad and Baillie, New York consultants were retained to design the structure. Subsequently a $6.5-million contract was awarded to Thorington Construction Co., Inc., of Richmond, Va. The contract includes construction of two temporary detour bridges, one on each side of the Rte 1 bridge, demolition of that structure and construction of the tunnel and its open ramp approaches.

The structure has an overall gradepoint to gradepoint length of 1,978 ft and a portal to portal length of 862 ft. It has a 14-ft, 3-in. vertical clearance and carries two separate roadways, each with two 12-ft lanes. Roadway gradients are 5.5% on the south and 5.63% on the north with a 275-ft vertical curve between.

The tunnel and its open ramp structures are being constructed within a steel sheet pile cofferdam. The cofferdam is installed, then excavated; anchor rods are encased in grout; a 4-ft tremie concrete seal is placed; then the cofferdams are dewatered and construction is carried on in the dry.

There is little conventional about either the tunnel anchorages or the waterproofing method.

The cofferdams are of MZ 38 sections ranging in length from 20 to 71 ft. Because of the need for maintaining navigation, the contractor is doing the work in two stages with each stage carrying the work to midstream. On the south side of the river, where work is virtually completed, the cofferdam bracing was standard, with walers on each inside face of the sheets and struts running between walers.

On the north side, now under construction, transverse strutting is held to a minimum by a tie-back system similar to one often used in bulk-head work. Battered tension anchor rod piles were installed on both walls of the cofferdam. Turnbuckles were used between the batter piles and the sheetpile walls to obtain maximum tension and a minimum of wall movement. The use of tie-backs helped speed excavation by eliminating obstructions to digging.

The completed tube will have enough mass to compensate for uplift —the problem was to hold the tremie seal concrete down during construction.

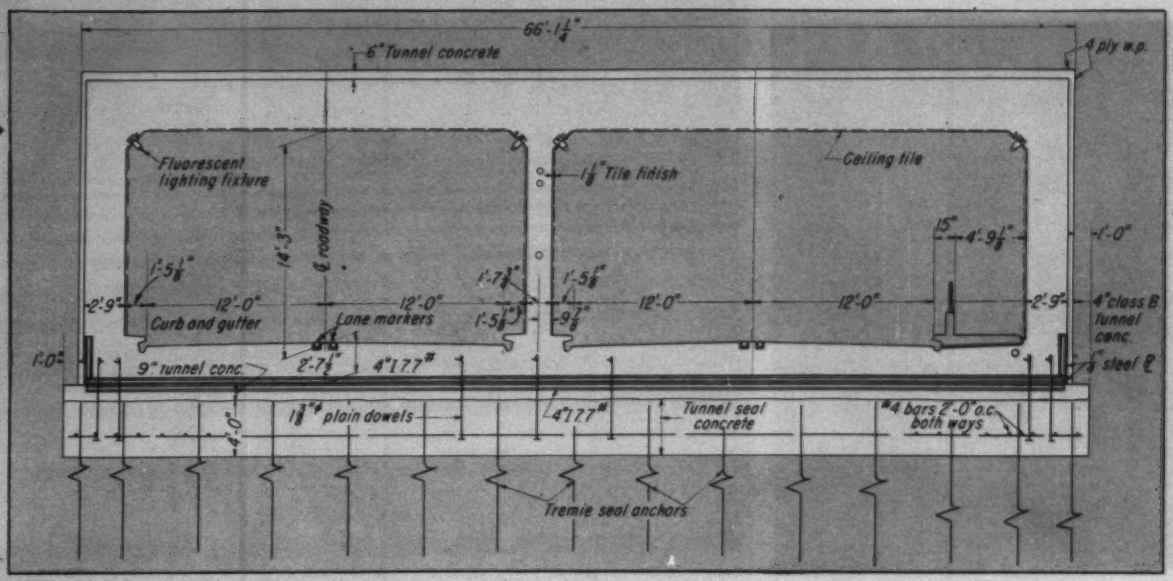
Tests performed by the Florida State Road Department before the award of the contract indicated the feasibility of using grouted rods as the anchorage for the tremie seal. The specifications gave the contractor the right to devise, subject to the approval of the consulting engineers, a hold-down method for a relatively thin tremie slab.

For this, he constructed a work bridge, 18 ft wide, 23 ft high, and capable of spanning 80 ft. The bridge is mounted on double flanged wheels and rolls on tracks running outside of, and parallel to, the cofferdam sheeting. A frame mounted on the deck of the bridge carries a set of 90-ft piledriving leads. The frame is also wheel-mounted and can be moved sideways across the bridge by a trigger hoist. A three drum winch, which travels with the leads, handles the lines needed for the pile-driving operation.

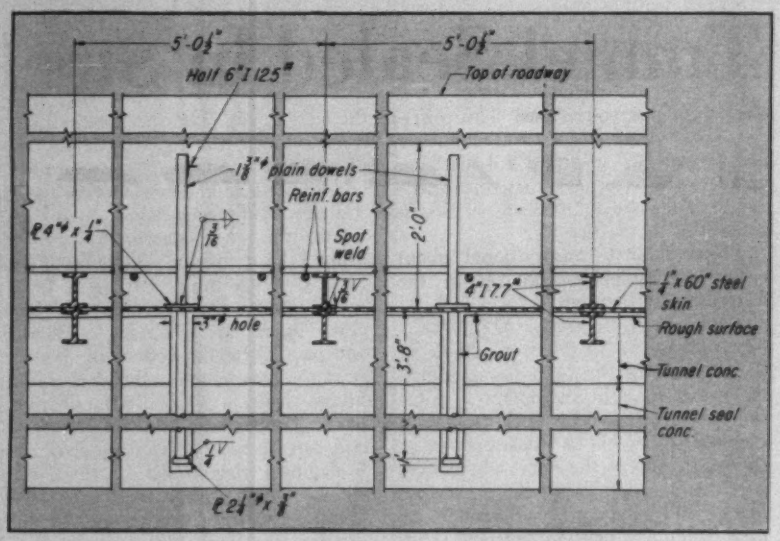
To install one of the tremie seal anchors, Thorington first drives a 7-in. pipe casing inside the cofferdam. This casing is closed at its bottom end by an expendable cap to keep solid materials out of the casing during driving. Each casing is driven to a depth varying from 20 to 78 ft below the bottom of the cut. Required anchor depth depends on the uplift forces resulting from the hydrostatic head at various points.

After each casing is driven, workmen lower a 1-in.-dia pipe to the bottom and fill the casing with grout to the calculated height to form a 7¼-in. pile from top to tip. An anchor rod is then lowered into the grout. Each rod is 1⅜ in. in diameter and is of sufficient length to reach from the bottom of the casing to a point about 4 ft above the subgrade.

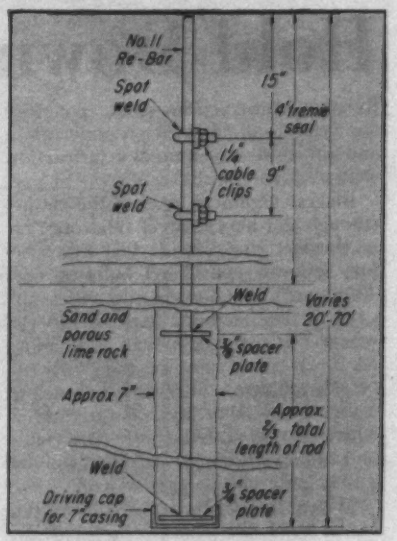
(Turn the page)



Roadways are steel-clad concrete boxes, dowel-connected to a 4-ft tremie seal.



Dowels into seal pierce tunnel's beam-supported skin.



Dowels in rock hold tremie seal.

At the bottom and at the ¾ point each rod carries spacers to insure its being centered within the casing. Initially, triangular plates were welded to the top of each rod to increase the bond between the anchors and the tremie seal concrete. Later, cable clips were used (see drawing lower right, above).

After each anchor rod is placed, workmen pull the pipe casing. This leaves the entire length of the grouted anchor secured to the sand and limerock, except for the uppermost 4 ft, which was later to be embedded solidly in the tremie slab.

When the grout has cured sufficiently, engineers test the anchors for uplift. The testing is done from a second bridge, which carries a frame derrick and a winch with capacity in excess of the required 65,000 lb. Dynamometers are used to get readings.

Of all the anchors tested on the south side, only nine failed, mainly because of faulty welds. These were replaced. None of the anchors failed on the north side.

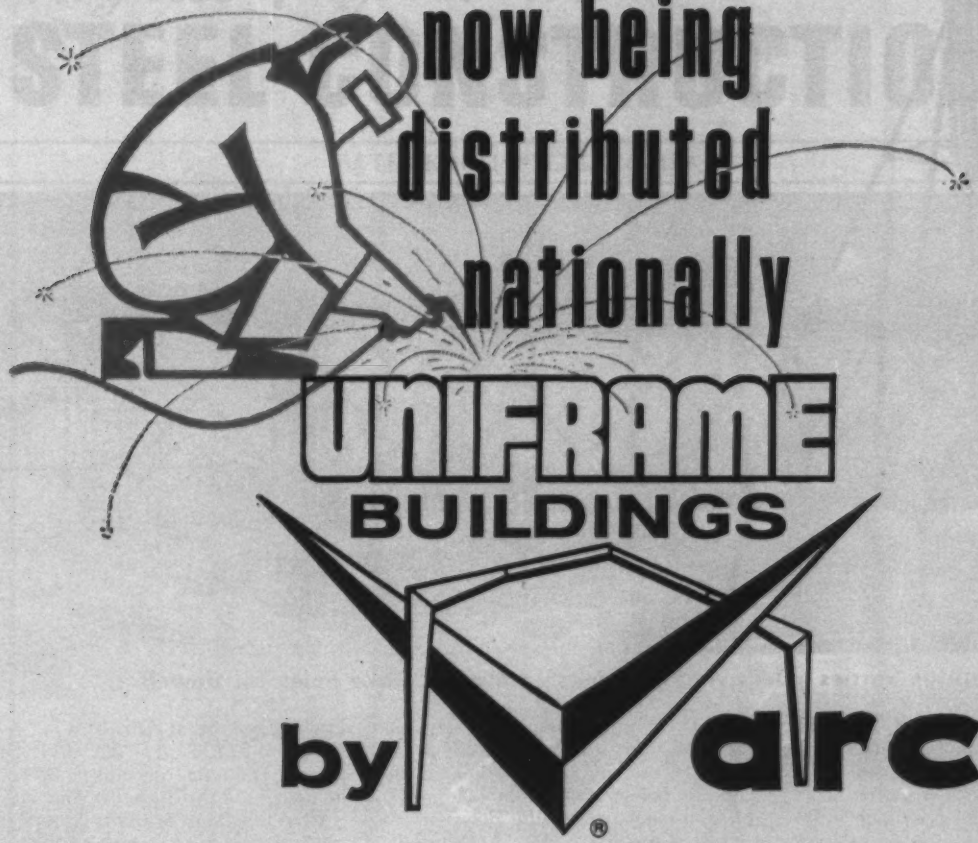
The 4 ft thick reinforced tremie seal concrete was cast by conventional methods. Subsequent dewatering of the cofferdam proved the effectiveness of the anchors.

Waterproofing of the floor of both the ramp and tunnel sections was handled in an unusual fashion. Singstad & Baillie did not want to use conventional membrane waterproofing because the 1⅜-in.-dia dowels connecting the tunnel floor slab to the built-up tremie slab would offer too great a chance of leakage. To avoid this they decided to use a ¼-in. steel plate seal. Here's how it was installed:

After a section of the cofferdam was dewatered, the tremie concrete was cleaned and a grid of 4-in., 7.7-lb I beams set up for lower flanges spaced 5 in. off the tremie concrete. These beams were so spaced that their webs would fall directly under the edges of the plates that were to be placed on them.

An 8-in. slab of concrete was then cast on the tremie seal so as to bury all but the top inch of the grid of steel I-beams.

Next came the ¼-in. plates that make



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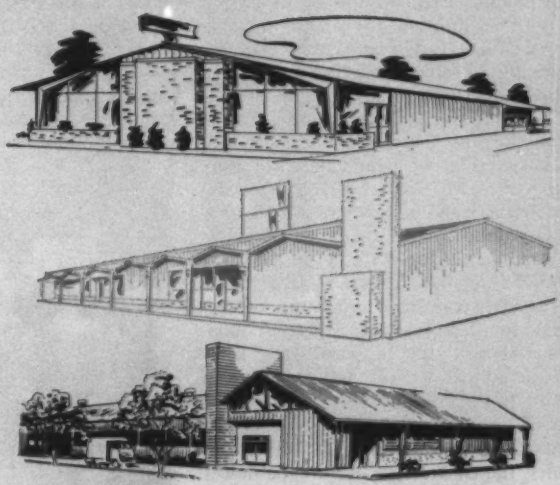

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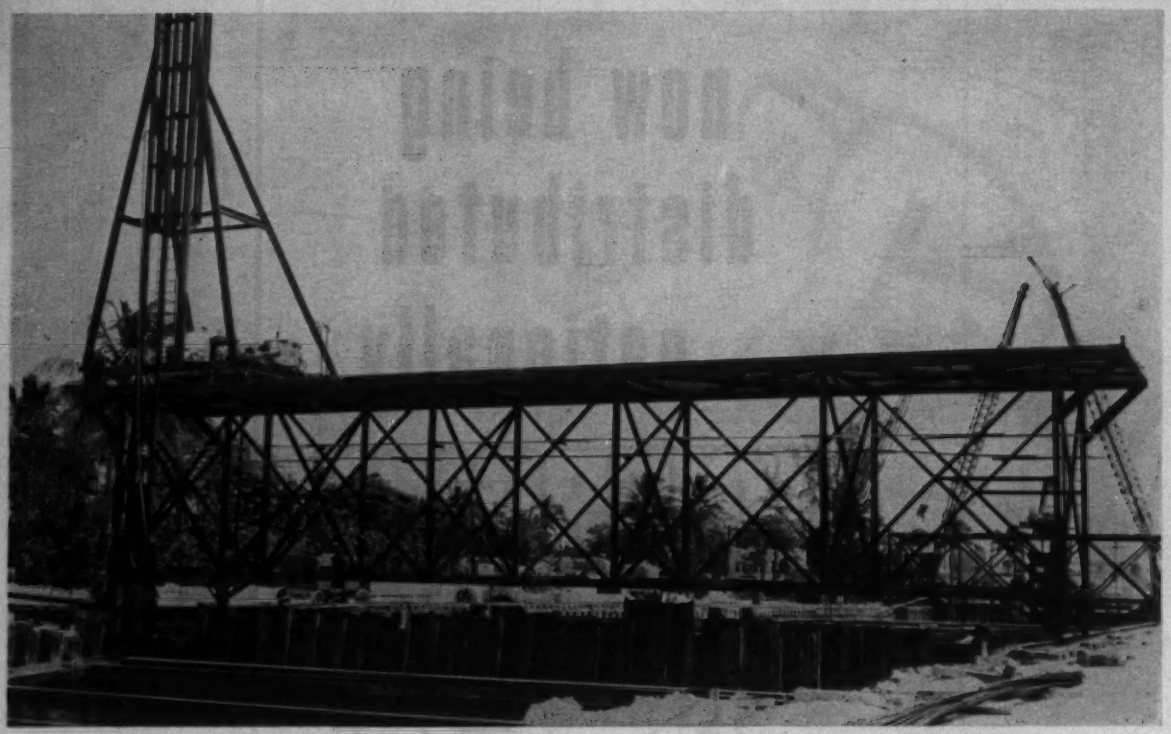


Rolling work bridge carries piledriver that sinks casings to make holes for dowels.

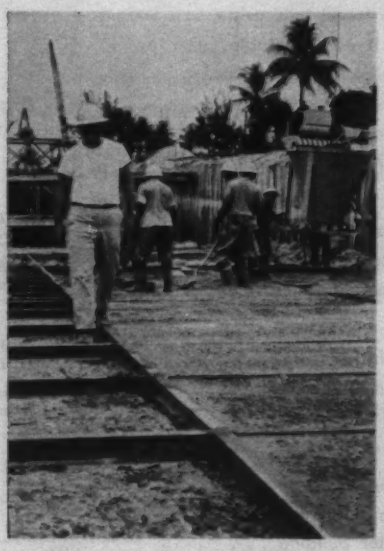
up the waterproofing membrane. The plates were set on the top flanges of the I beam grid, with the plate edges aligned with the webs of the beams.

As the plates were placed, they were continuously welded to the beam flanges and to each other to provide a solid metal floor. Side plates were welded vertically to form a structure resembling a bathtub.

To allow for expansion and contraction, the plane surface of the plate was interrupted at two points along the tunnel with a "U" of steel that works in much the same manner as a loop in a long pipeline.

Across the floorplates were lines of 3-in.-dia anchor holes. In the ramp section there were a minimum of ten holes in each line and the holes were about evenly spaced across the slab. In the tunnel sections there were only seven holes in each line; two beneath each side wall and three in the area of the center wall. Working through these holes, the contractor cut 3-in.-dia dowel holes through the 8 in. of filler concrete and 2 ft, 11 in. into the tremie concrete.

Floor dowels were then placed through the holes in the plate and into the holes in the tremie concrete below. Each floor dowel is made from a 1⅜-in.-dia rod, 5 ft 8 in. long. At the bottom end of each dowel is welded a 2¼-in.-dia head of ⅜-in. plate. At a point 3 ft 8 in. from the bottom is welded a 4-in.-dia "washer" of ¼-in. plate. This washer serves three purposes: it rests on the steel waterproofing to position the dowel off the bottom of the hole in the concrete below; it closes the hole in the plate through which the dowel is inserted; it provides a very simple means of welding the anchor to the plate through which the dowel is inserted; and it provides a simple means of welding the anchor to the plate without leaving any openings. Near the top of each floor dowel there was welded transversely a 5-in.-long piece of 3-in., 5-lb channel or half of a 6 in. 12.5 lb I. This provides additional anchorage between the dowel and the floor slab concrete.



Steel grid holds steel skin.

After the floor dowels were welded to the plate, 4 in. I beams were set over the joints between the plates and welded to them. These beams are directly over those supporting the plates from below.

The 1 in. space between the underside of the plate and the concrete below is filled with grout pressure-pumped though grout holes in the plate.

Placing of this grout also fills the dowel holes in the tremie concrete and anchors the floor in the tremie seal.

The tunnel floor concrete slab is then cast on top of the steel plate ribbon, followed by placing of the wall concrete. In the tunnel sections, the sides and roof are then cast. Conventional membrane waterproofing is placed over the tunnel roof and sides and carried down to overlap the steel side plates much as shingles overlap each other on the side of a house. A 4-in.-thick protective coating of concrete is then placed over the membrane to complete the exterior of the tunnel.

The tunnel work, scheduled for completion on November 30, is under the direction of James E. Hood, project manager for Thorington. Edward V. Jones is resident engineer for Singstad and Baillie, and John M. Gerren is project engineer for the Florida State Road Department.

Progress Report on STEEL CONSTRUCTION

JUNE, 1961

BETHLEHEM STEEL COMPANY

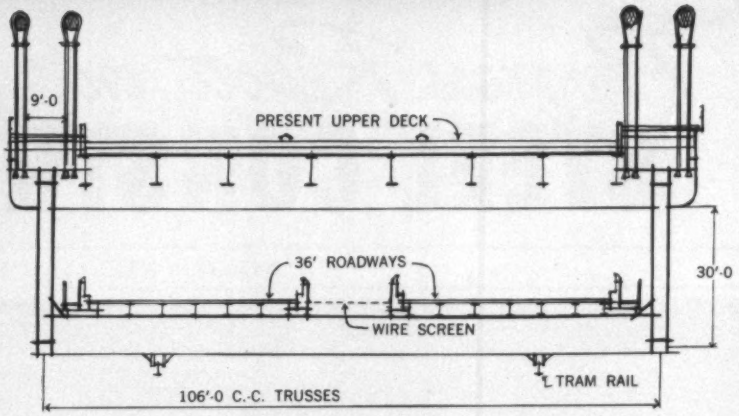
Night Shift in Manhattan

NEW YORK CITY—The time: 1 a.m., January 19. The place: George Washington Bridge, just over the southbound roadway of the Henry Hudson Parkway. The event: connecting the first of seventy-six 220-ton sections for a six-lane lower traffic deck.

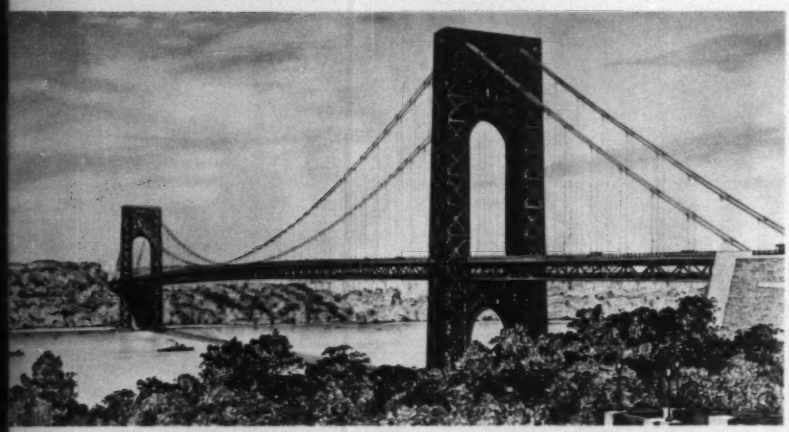
In order to avoid interfering with traffic on the bridge, all work is being done from beneath the existing span. This procedure raised problems unprecedented in the history of bridge-building. For a brief description, please turn the page.

Steel
for Strength
... Economy
... Versatility

This typical cross-section illustrates the general design of the lower deck and its connection with the existing structure. The only provisions originally made for attaching the deck were gusset plates on the wind chords at floor-beam panel points sixty ft apart. The wind chords double as the top chords of the new stiffening trusses. Bethlehem bridgemen had to locate the new connections and drill the necessary holes for rivets (rivets were preferred to high-strength bolts because bolting would have required the removal of many coats of paint from the gusset plates). However, all field connections between new members are bolted.



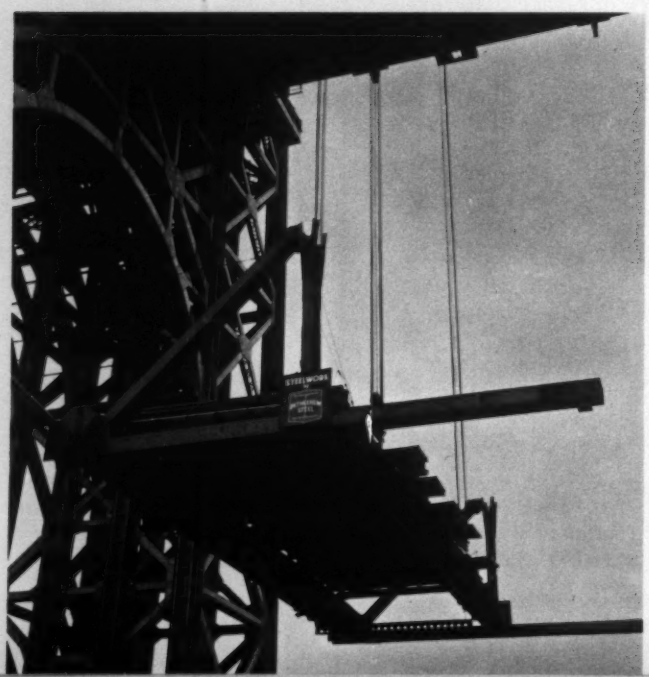
Boosting George Washington's Capacity by 75 per cent



This drawing shows the George Washington Bridge with the lower deck complete. The bridge will then have a stiffening truss of the general type ordinarily required for aerodynamic stability in long suspension bridges. Such a truss system was not originally required for this bridge, however, because of its great mass and the stiffness of its four massive, 36-in.-diameter parallel-wire cables, the largest ever spun.

Just thirty-two years ago, on June 25, 1928, Bethlehem Steel crews began erecting the magnificent towers for the George Washington Bridge, spanning the Hudson River between 178th and 179th streets. Three years and four months later the bridge was opened to traffic. Its main span, 3,500 ft between towers, and total suspended span, 4,760 ft between anchorages, made it the world's longest (it became second longest in 1937, when Bethlehem completed erection of Golden Gate Bridge with its 4,200-ft main span), and it now has the third longest center span in the world.

But even when it was opened in 1931, the George Washington Bridge was not really "complete." Its design provided for a second, lower deck. Construction of this deck to relieve the growing vehicular burden on the world-famous bridge was recommended by The Port of New York Authority in their Joint Study of Arterial Facilities in the New York-New Jersey Metropolitan Area, published in 1955. In 1957, following legislative approval in both states, the Port Authority commissioners authorized the addition of a six-lane traffic deck and construction of the necessary approaches in New York and New Jersey at a cost of some $180,000,000. The contract to fabricate and erect some 13,875 tons of steel was awarded to Bethlehem Steel Company.



Raising the first complete lower-deck section. This event took place at the New York-side sidespan. The assembly, weighing 220 tons and comprising two 30-ft panels, including two side trusses, two built-up girders, and one complete panel of the floor system, was hoisted in the daytime alongside the main tower. During early morning hours it was moved by means of the trolley system to its permanent position over the heavily traveled parkway. The latter operation is pictured on our first page.

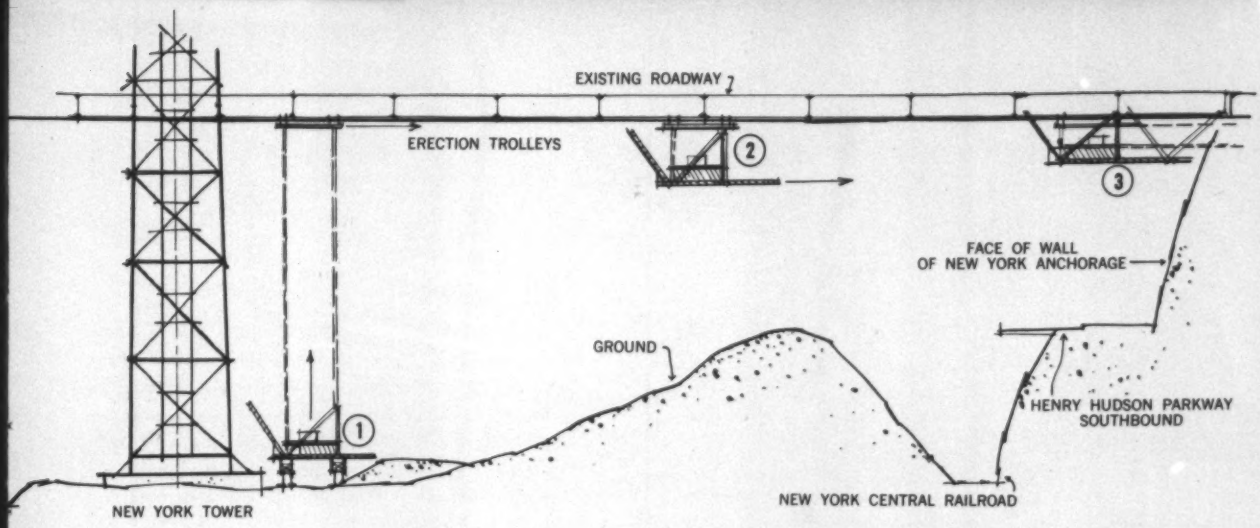
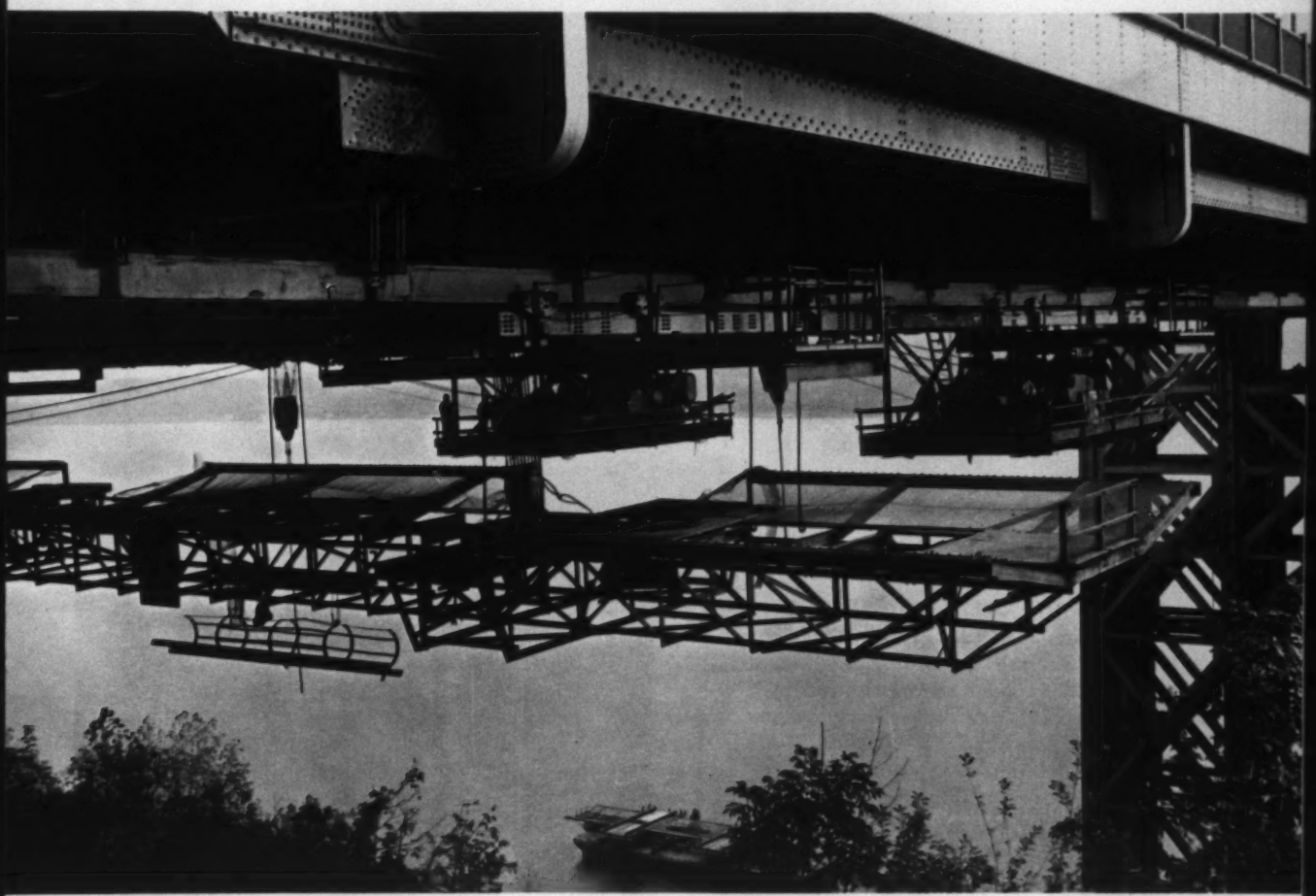
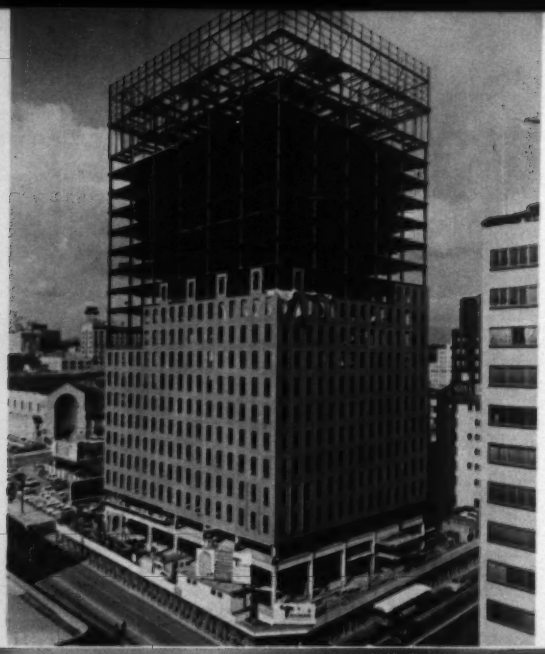


Diagram of the method used to erect the first truss section. The other seventy-five are being erected in a similar fashion, those for the center span being hoisted from barges anchored in the river. The erection trolleys, complete with hoisting engines, run along 24 WF 76 track beams connected under the bridge floor. These beams will be re-used as stringers for the lower deck.



BETHLEHEM STEEL

The structure in the foreground is one of the permanent maintenance bridges, as altered for temporary use. These provided access and served as working platforms for the Bethlehem crews assigned to the drilling and other preparatory operations. Another platform can be seen on a barge in the river. Also visible are two hoists mounted on the trolley system. Note at top the drilled gusset plates.



BETHLEHEM STEEL

The Tallest in Town

LOS ANGELES—Since repeal of the old height limit, the trend is up, all over town. Newest skyscraper is the 22-story Wilshire-Flower Building, in the downtown area. It's the city's tallest commercial building—269 ft.

Its steel frame, fabricated and erected by Bethlehem, was topped out in January. The structure contains 372,000 sq ft of gross floor area, and required 3,350 tons of structural steel.

Rails Over the River

QUINCY, ILL.—This realistic drawing gives you a good idea of the appearance of the Chicago, Burlington & Quincy Railroad Company's new Mississippi River Bridge upon completion later this year.

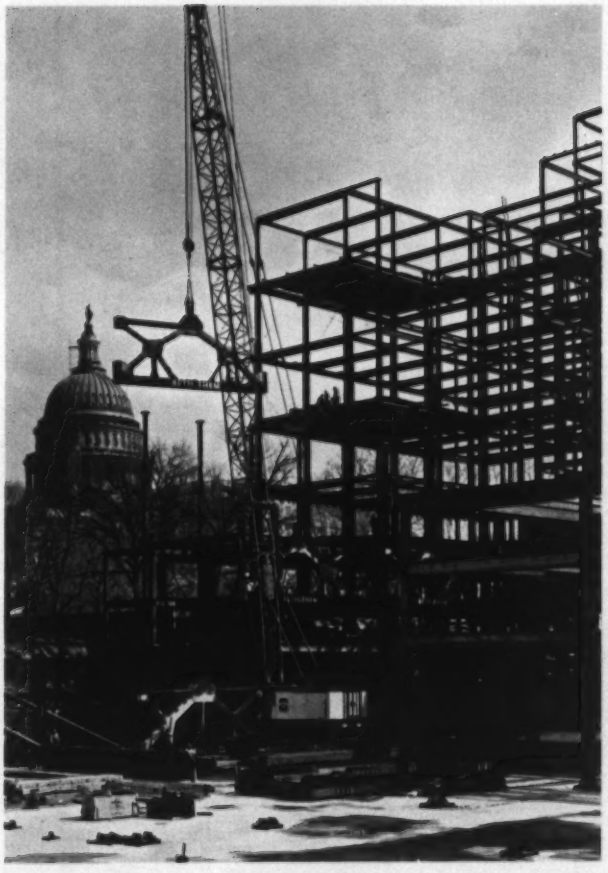
Some 2,500 ft long, the new bridge replaces a low-level swingspan structure just to the south. The main span in the foreground provides a 300-ft clear navigation channel, with 63 ft clearance above the normal pool. Not shown are two plate-girder approach bridges to the east, one over Quincy Bay and the other over Route 7. These, as well as the main bridge, are being fabricated and erected by Bethlehem Steel.

The erection scheme calls for the assembly of six deck trusses on barges anchored between the piers. By flooding the barges, Bethlehem bridgemen will ease the trusses onto their anchor bolts. Then they'll erect stringers on the trusses, after which another contractor will place the deck and Burlington construction men will do the trackwork.

The through truss, 336 ft c-c of bearings, will be erected with a floating tower-derrick, assembling the two halves independently on falsework aboard two pairs of barges. Last step will be joining the two halves and landing them on their bearings.

The old navigation channel on the far side of the river will be kept open while construction is under way. The most critical operation occurs when the bridgemen float the last deck truss, complete with trackwork, into position over the old channel and, at the same time, disconnect and float *out* a truss of the old bridge over the *new* channel. Careful planning and teamwork will result in a very brief interruption of rail and barge traffic.

Here's a Sweet Job



SALINAS, CALIF.—It's Nestlé Company's new chocolate plant which will be turning out its delicious products by early 1961.

The main building, shown here, measures 275 by 525 ft with 19 ft of headroom. Those welded, tapered steel girders provide 50-ft spans; purlins span 25 ft between girders. Field connections are made with high-strength bolts. The columns, most of which are 14-in. wide-flange sections weighing from 78 to 84 lb/ft, were field-welded to base plates. Bethlehem's erection crew handled the entire job in four weeks, using only a 25-ton-capacity truck crane.

The building was designed for earthquake resistance, as well as to permit economical future expansion. The long spans and rigid-frame construction provide for flexibility in layout of equipment.

Big Lift for Lawmakers

WASHINGTON—The event pictured here was the hoisting and placing of a heavy truss for the House of Representatives Additional House Office Building.

Weighing about 14 tons, and 36 ft long, the truss is one of 128 required for the new building. All of the steelwork for the structure, totaling some 23,000 tons, was fabricated and erected by Bethlehem.

A few years ago, a short distance away, Bethlehem completed the steelwork for the additional Senate Office Building. This is now occupied by senators who were long hampered by the inadequacy of their former office facilities. Soon the representatives, too, will have roomy, up-to-date working quarters.

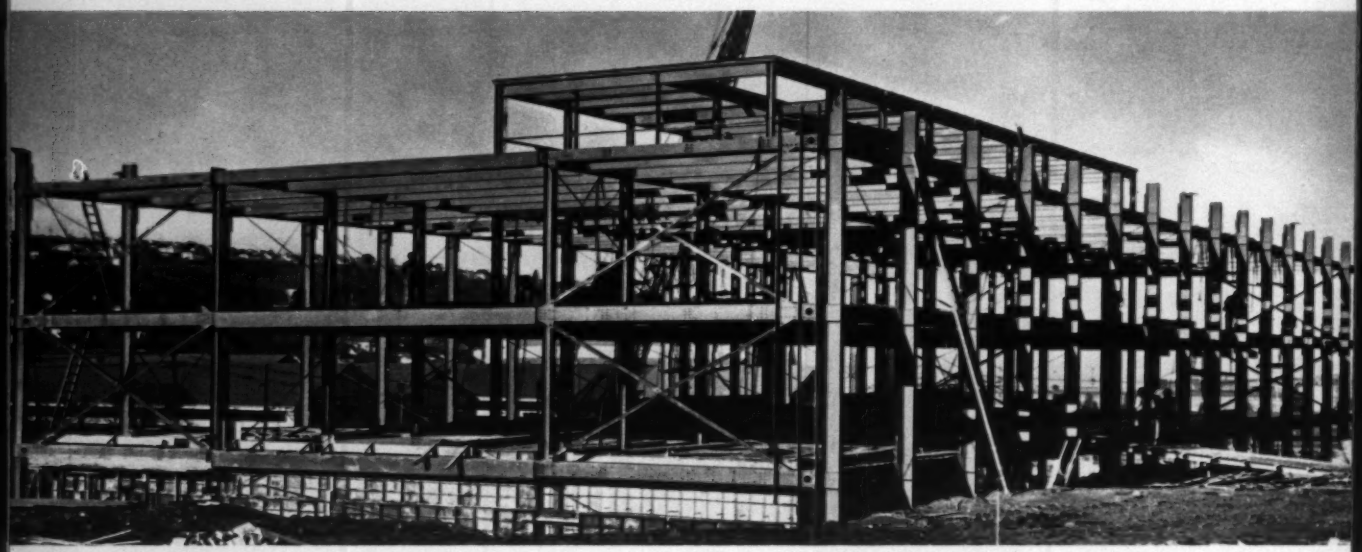
New Office Building for a "New" Steel Plant

SEATTLE—Just a year ago, Bethlehem's "new" Seattle Plant went into full operation. Actually, the plant is an outgrowth of a sixty-five-year-old operation, thoroughly re-built and modernized so that it is today a model of steelmaking efficiency.

With the completion of the building shown here, plant management and office personnel will occupy equally up-to-date office facilities. This building, overlooking the plant, represents the latest word in office design. Its peripheral columns stand outside the curtain walls, thereby avoiding clutter within. The columns will be painted and left exposed, contributing to the architectural effect. The steelwork was fabricated at our nearby Seattle Works, and erected by Bethlehem crews.

An unusual feature of the building is its sun-control system. A photo-electric device will automatically adjust vertical vanes along the entire west side of the building so as to provide adequate shade, yet admit the maximum amount of daylight.

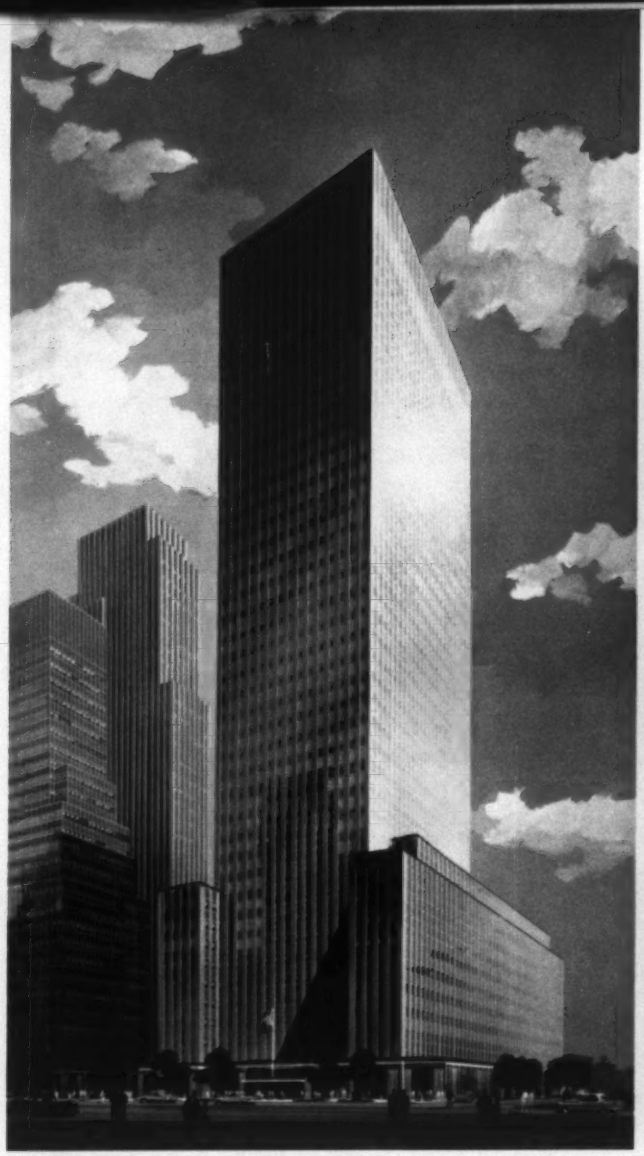
The 150 employees to be housed here, presently located in five widely scattered buildings, include the staff of Bethlehem's Seattle sales office.



Steel in the Suburbs

WEST SENECA, N.Y.—Suburban shopping centers are growing along with the areas they serve. This steelwork, for instance, is for a major addition to Southgate Plaza, outside of Buffalo.

The two-story building, which will be operated by Sears Roebuck & Company, incorporates the latest trends in fixtures and display facilities. It's to be a complete department store, fully air-conditioned, and will include a public cafeteria and a 14-car service station. Bethlehem fabricated and erected the structural steel framework.



633 Third Avenue

The American Home Products Building

Avenue on the Rise

BETHLEHEM STEEL

NEW YORK CITY—Another chapter in the amazing story of the "new" Third Avenue. Formerly the site of tawdry shops and pubs clustered in the shadow of the old El, Third Avenue is now a broad thoroughfare undergoing a remarkable transformation.

Even before the El had been demolished in 1955, Bethlehem crews were at work on the steelwork for 711 Third Avenue, the avenue's pioneering modern office building. This year, a stone's throw away, work began on two more outstanding structures, the American Home Products Building (685 Third Avenue), and 633 Third Avenue.

The American Home Products Building, on the corner of 43rd Street, will be the headquarters of the well-known firm for which it is named. Twenty-five stories high, it will provide ample office space for the executive and administrative personnel of the parent company and its subsidiaries.

633 Third Avenue, 41 stories, will be located on the east side of the avenue between 40th and 41st Streets. It is the Avenue's second largest office building and one of the biggest to be built in the city since 1945. Much of the 800,000 sq ft of rentable space has already been reserved by blue-chip firms.

CREDITS...

George Washington Bridge Lower Deck — *Owner and operator:* The Port of New York Authority. The final design of the lower deck was developed and its construction is being supervised by the engineering staff of the Authority under the direction of John M. Kyle, Chief Engineer, and I. P. Gould, Engineer of Design. O. H. Ammann, who designed the bridge as chief engineer of the Authority, was also consultant for the design of the lower deck.

Wilshire-Flower Building — *Owner and builder:* Tishman Realty & Construction Company; *architect and engineer:* Victor Gruen Associates and Daniel, Mann, Johnson, & Mendenhall.

Railroad Bridge — *Owner:* Chicago, Burlington & Quincy Railroad Company; *consulting engineers:* Howard, Needles, Tammen & Bergendoff.

Chocolate Plant — *Owner:* Nestlé Company; *engineering and design:* John A. Blume & Associates, Engineers; *general contractor:* Haas & Haynie.

House Office Building — *Architect:* J. George Stewart, Architect of the Capitol; *associate architect:* Harbison, Hough, Livingston & Larson; *structural engineers:* Chester I. Duncan & Son, A. W. Lookup Co., and Sauter & Castor; *general contractor:* McCloskey & Co.

Plant Office Building — *Owner:* Bethlehem Steel Company; *architect:* Bindon & Wright; *structural engineer:* Anderson-Bjornstad-Kane; *general contractor:* John H. Sellen Construction Co.

Department Store Building — *Owner:* Southgate Plaza, Inc.; *architect and engineer:* Joseph J. Geigand.

The American Home Products Building — *Owner and builder:* Sam Minskoff & Sons; *architect:* Robert L. Bien; *structural engineer:* Weinberger, Frieman, Leichtman & Quinn.

633 Third Avenue — *Owner:* Galbreath-Ruffin Realty Company, Inc.; *architect:* Harrison & Abramovitz; *builder:* Turner Construction Company.

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Booklet 527-A *The Welding of Concrete Reinforcing Bars*—A 20-page booklet describing the recommended procedures for welding reinforcing bars, with sketches and joint details.

Catalog 493 *Wire Rope for Construction and Industrial Equipment*—A 150-page catalog containing specific recommendations for the use of Bethlehem wire ropes on various types of construction and industrial equipment. It also includes basic wire rope information, as well as detailed data on standard Bethlehem ropes and fittings.

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Water Conversion Plant Starts

In land-locked South Dakota, where only the drinking water has the tang of the ocean, preliminary work has started on one of the Interior Department's demonstration plants for the conversion of brackish water. The project, one of five planned by the Office of Saline Water, may hold at least part of the answer to the nation's future water supply problem.

At Webster, in the northeast corner of the state, drilling is under way on a well that, along with existing wells, will supply raw brackish water to a 250,000-gpd desalinization plant. The plant will provide the community's 2,500 residents with an ample supply of sweet and chemically wholesome water. From a chemical content of 1,400 to 1,600 ppm, Webster's groundwater will be reduced in salinity to at most 500 ppm total dissolved salts, the Public Health Service standard for drinking water.

The Webster plant, like Interior's four other demonstration units to be located around the country, will be a full-scale facility, operating under the pressures of a community's daily demands. Goal is to prove the reliability, engineering, operating, and economic potentials of the conversion process.

As the first actually to get started, this plant stands as a case study of a program aimed at solving what many regard as the nation's most pressing domestic problem—a plentiful supply of reasonably priced water.

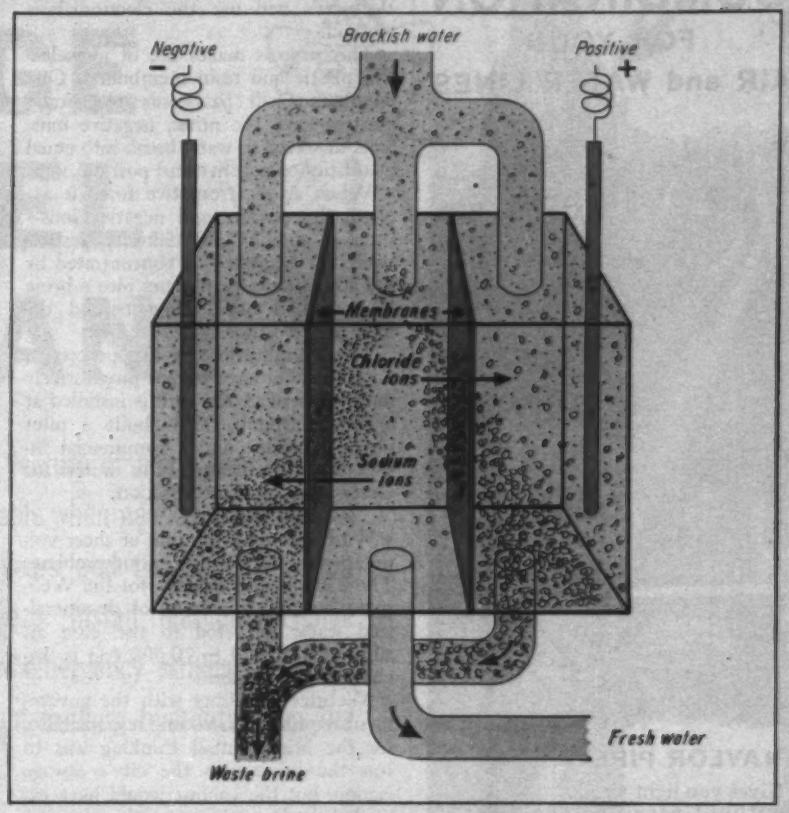
Basic premise behind the program is that the increasing demand—expected at least to double in the next 20 years—can be met partly with sea water or, in the interior West, the plentiful but brackish groundwater.

As a case in point, well water of Webster, S. D., could be called typical The best that can be said for it is that it's wet. Heavy with sulfates, chlorides, calcium, magnesium and bicarbonate, the water is foul smelling, bitter tasting and so hard that it stains plumbing fixtures and clogs them with accretions.

The "quality" of Webster's water helped the community to come out on top in the area-wide competition for the Northern Great Plains demonstration brackish water converter. Most of the larger cities within this region are located on major streams and have access to surface water that is relatively sweet.

But the smaller inland towns, dependent on wells as deep as 5,000 ft, all too often find that bitter, hard water is their common denominator with other rural communities.

The plant's operations will be carried out under a joint municipal-federal arrangement by which:



Electrodialysis process is based on ion-selective membranes.

• Webster will provide the site for the plant, deliver the raw water to the federal plant, dispose of the brine effluent and accept all product water at a cost per 1,000 gallons agreed on in a cooperative contract.

• Office of Saline Water will pay all construction, operating and maintenance charges of the plant.

• **Municipal program**—Webster's share is expected to run close to $20,000, with a bond issue as the probable source of funds. Major items are a new well, expected to cost around $8,000, and pumping equipment, estimated at $5,000.

The community's present plant, which draws an average 150,000 gpd and a maximum 250,000 gpd from four wells that range in depth from 83 ft to 250 ft will be kept as is. This will permit using the existing plant as a standby for the federal plant, which, in keeping with the necessities of its demonstration assignment, will occasionally interrupt routine production.

The pumps of the present plant will be used to deliver raw water to the conversion installation. The additional well, now being sunk, and the new plant will be on a city-furnished plot two blocks from the municipal plant.

• **Federal participation**—The Office of Saline Water has assigned architect and engineering responsibilities to the Bureau of Reclamation Laboratories at Denver. Dr. A. L. Miller, OSW director, said an appropriation request of $550,000 has been submitted for the plant but he hopes the construction bids will be much lower.

Annual operating costs are expected to run between $350,000 and $400,000, all to be borne by the federal government. Production of fresh water is to begin about nine months after contract award. Operation and maintenance of the plant will be under contract.

Under law, the plant can continue under federal operation only until September 2, 1965, when the Secretary of the Interior must dispose of it as promptly as practicable, or as Congress may direct.

• **Conversion process**—The broad scope of the demonstration program requires that each of the five plants employ a

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. . . South Dakota desalter will be full-scale facility

different conversion process (see table). Webster's will use the electrodialysis method.

This process makes use of ion-selective plastic and resin membranes. One membrane will pass only electrically positive ions; the other, negative ions. Salts dissolved in water break into equal quantities of negative and position ions.

When an electromotive force is applied, the positive and negative ions—such as sodium and chloride, respectively, for example—are concentrated by the appropriate membranes into a brine that is bled off, leaving behind demineralized water.

Three applications of this process in South Dakota have proven progressively more efficient. A test unit is installed at a state hospital; OSW built a pilot plant at Miller; and a commercial installation provides all the water for Gettysburg Air Force Station.

• **Waste disposal**—Because of sheer volume, waste disposal is a prime problem. The 250,000-gpd capacity for the Webster plant is net volume of demineralized water delivered to the city; an additional 60,000 to 70,000 gpd is discharged as waste brine.

Webster's contract with the government requires it to assume responsibility for the brine. Initial thinking was to run the brine into the city's sewage lagoon, but the volume would have exceeded the lagoon's evaporative capacity.

The State Department of Health and Committee on Water Pollution have indicated they will accept disposal of the brine into a natural waterway where it will be mixed with the effluent from the city's new sewage stabilization pond.

• **Cost comparisons**—In its estimates, the OSW figured all costs at today's prices, including land, capital investment, operation and maintenance, taxes, insurance, and interest on what Dr. Miller describes as "a rather severe" 20-year amortization schedule.

On this basis, the product water cost is expected to be somewhat below 80 cents per thousand gallons. Treating brackish water by established methods is expensive. So much so that many South Dakota communities drink their water straight. Others treat water by various methods, including chlorination, sedimentation, aeration and filtration, but none of these processes remove dissolved salts. Only a few communities, of which Webster is one, have felt flush enough to install softening equipment.

On the basis of experience, Webster does not regard the 80-cent figure as excessive. While the exact price the community will pay for product water remains to be negotiated with OSW, prospects are that no upward revision in rates will be necessary.

Webster's rates are $1.00 per thousand gallons for the first 9,000 gallons. This puts the average homeowner's bill at about $7.00 to $8.00 per month. Under the new OSW setup, the town expects to have pure water at a price no greater—and possibly less—than it is now paying for inferior water. (For news on a California desalter said to be producing 20-cents-per-thousand-gal water, see p. 21.)

• **Existing plants**—While the results of the Webster installation await actual plant operation, there is considerable experience to be gained from military installations operating in the Dakotas.

These facilities were prompted by the fact that, while Dakotans are rugged souls with an ingrained tolerance for their water, GI's are another matter. Many simply will not drink the water, so they exist on beer, soft drinks and fruit juices during their tour of duty. Also there are strategic reasons—a B-52, in a single takeoff, consumes 1,500 gallons of water that must be pure.

There are six Aircraft Control and Warning stations that use zeolite demineralizers, but the Gettysburg AC &W station, by contrast, uses electrodialysis.

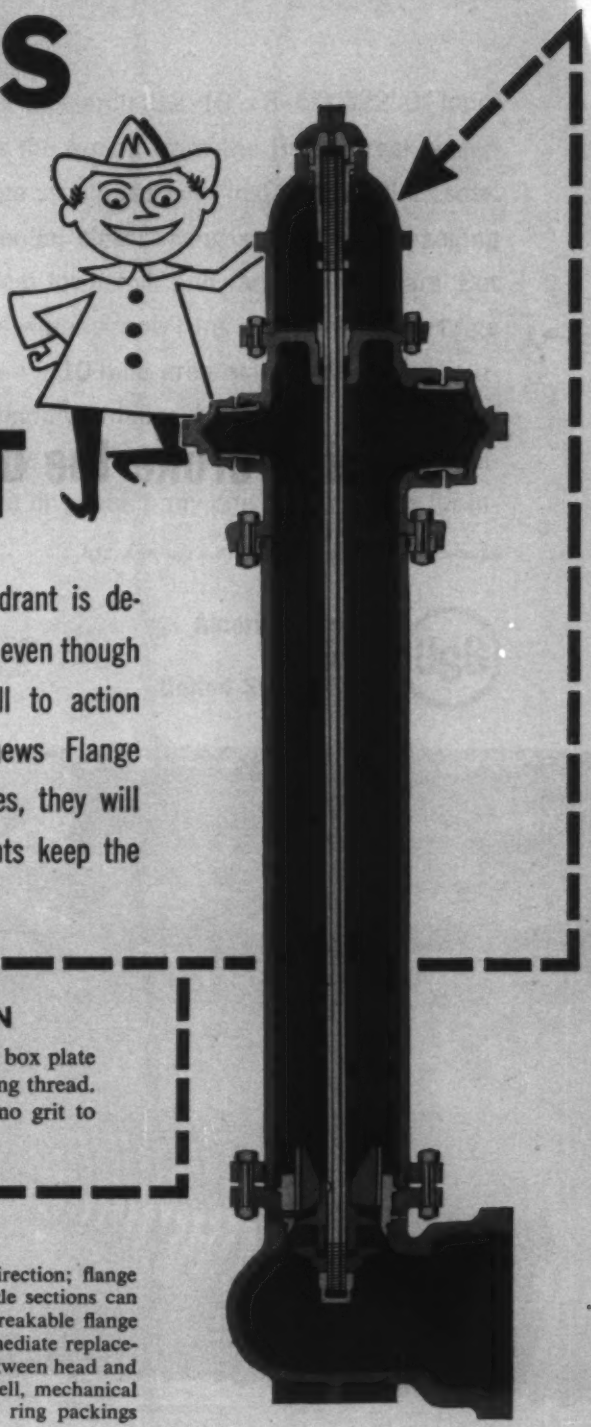
Of the various treatment plants, the Gettysburg unit is most illuminating. Pre-construction analysis showed that distillation product water would have cost between $1.75 and $2.00 per thousand gallons. A zeolite demineralizer would have produced water at $1.70 per thousand. The electrodialysis system now in use is turning out water at 85 cents per thousand gallons.

This advantage continues in annual operating costs. They are calculated at $13,000 for the selective membrane system. Initial costs, however, were about equal—close to $75,000.

Interior's Five Demonstrators:

Location	Process	Capacity (gpd)
Webster, S. D.	Electrodialysis	250,000
Roswell, N. M.	Forced circulation, vapor compression distillation	250,000
Freeport, Tex.	Long tube, vertical, multiple effect distillation	1,000,000
Southern Calif.	Multi-stage flash distillation	1,000,000
East Coast	Some type of freezing process	100,000 to 350,000

MATHEWS FLANGE BARREL HYDRANT



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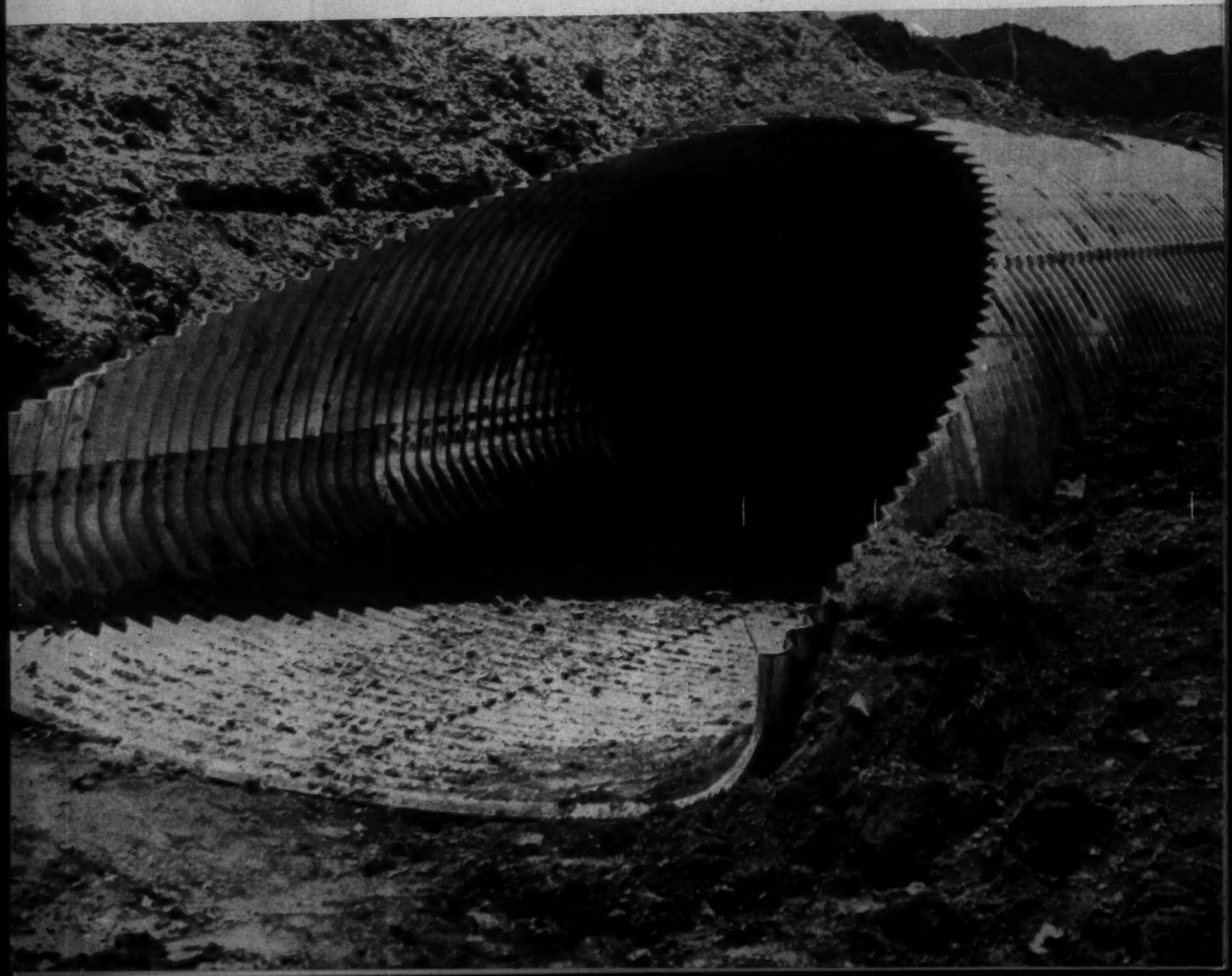
This pipe broke the back of a flood-crazy stream



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USS AmBridge Highway Beam Guard rail and Posts help safeguard traffic. This rugged, flexible steel beam guard rail is highly visible. It bolts easily but firmly to steel posts and is available in 12'6" and 25' lengths to minimize splicing.

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Removal of these columns provided column-free banking area.

Girders

Removing three lower-story columns and transferring their loads to two steel plate girders challenged the ingenuity of the designers and the contractor remodeling a Los Angeles bank building. Object: to provide a larger unobstructed main floor area.

Two of the columns are steel and the third is concrete—a result of building the structure in two stages. The new plate girders pick up the column loads at the third floor level of the 11-story Security First National Bank Building.

Major problems of the job:

- Threading the 7-ft-4-in.-deep girders into the building and erecting them in the confined space under the third floor.
- Transferring the column loads to the girders before removing the lower column sections.

After casting concrete foundations for new columns that would support the plate girders, the builder installed steel foundation beams to carry the new column loads across existing column footings to the new footings. Thick cover plates on the foundation beams were high-strength bolted.

Next came erection of the new columns—58-ft high steel sections fabricated from two pairs of 7x4x$\frac{7}{8}$ angles, backed with 1-in.-thick plates. Flat bars, bolted to the outstanding short angle legs, lace the built-up channels in an X-series pattern.

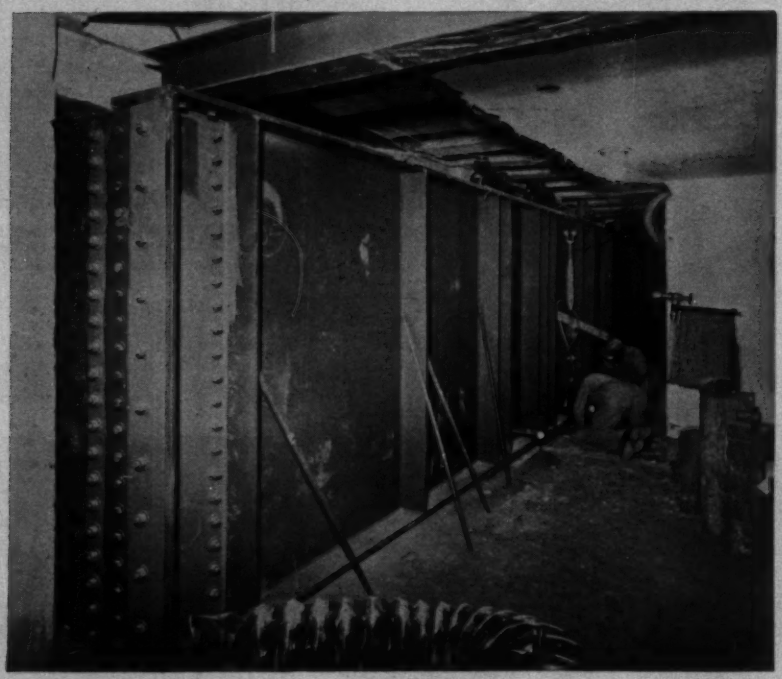
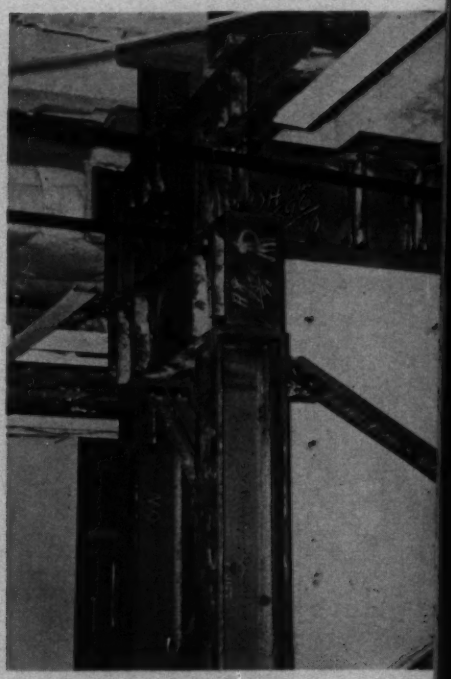


Plate girders under third floor pick up column loads.



Shoring frame shifts concrete . . .

Replace Columns in Bank Job

The 38-ft-span girders were fabricated and shipped to the job in six sections, three for each girder. Ironworkers threaded them into the building at ground floor level and moved them to a light well. A guy derrick mounted on the roof hoisted the sections to the second mezzanine level where the erectors inched them into place. After accurate alignment of a girder on each side of the columns, welders butt-welded the sections into two structural units. Later in the erection sequence, diaphragm plates connected the two girders into a single structural unit.

Web plates of the 88-in.-deep girders are ⅜ in. thick; flange plates 14x1 in.; cover plates, 12x¾ in.

After completing the girder erection, the ironworkers erected temporary steel shoring frames around each of the three columns to be removed. Four 50-ton jacks, working against wide-flange beams bolted to the column flanges, transferred the steel column loads to the girders.

Below the new girders, the ⅞-in. rivets in the old steel column splices were removed during the load transfer and replaced by ¾-in. bolts. Object: to permit joint slippage to relieve any tension stresses induced by the jacking.

During load transfer, deflections in the new girders were checked with gages. Deflections were limited to those calculated for dead load plus 20% of the live load carried by the columns.

Method of transferring the load of the concrete column to the new girders was different. The engineers wanted to avoid drilling the many holes required for bolts capable of transferring the jacking force to the 27-in.-sq column. They decided to transfer the jacking force through concrete girders and joists framing into the column.

This created a new problem: the possibility of excessive local shear stresses in the concrete girders and joists resulting from uneven load application around the column. To distribute the column load, the engineers called for temporary shoring frames to pick up the load through the concrete girders and joists at the fourth, fifth and sixth floors.

Steel wedges driven between the girder soffits and the tops of the shoring frames transmitted the load to the shoring frames at these points. Hardwood wedges inserted between the concrete joists and the shoring frames prevented overstressing these lighter members.

Connecting the columns to the new girders was a similar process for all columns. The two steel columns and the concrete column were flame cut just above the girder tops. An aluminum oxide flame sliced through the concrete. Ironworkers inserted pairs of ⅞-in. diaphragm plates between the girder webs, one on each side of the three columns. Base plates were welded to the girder tops; similar plates were welded to the bottoms of the steel columns. A pair of polished steel wedge plates were then forced between the girder and column plates and welded in place. With the load safely transferred, workmen then removed the shoring.

An ironworker welded a plate to the reinforcing bars at the bottom of the concrete column. The space between the column bottom and the plate was dry-packed with non-shrink grout. Steel wedges, as in the case of the steel columns, then went into place between the plates.

Banking operations continued during the entire remodeling, except in the first floor banking room.

Total cost of the job was $4 million. This included framing at two levels for a 44x52-ft light well, extension of a mezzanine floor, new electrical and air-conditioning systems, and installation of new elevators.

Structural engineers were Brandow and Johnston; architect, Welton Becket and Associates. General contractor, McNeil Construction Co., and the steel erection subcontractor, Henry E. Robertson Co., accomplished the load transfer without a hitch. All firms on the job are from Los Angeles.

column load to girders.

Girders flank concrete column . . . cut with aluminum oxide torch.

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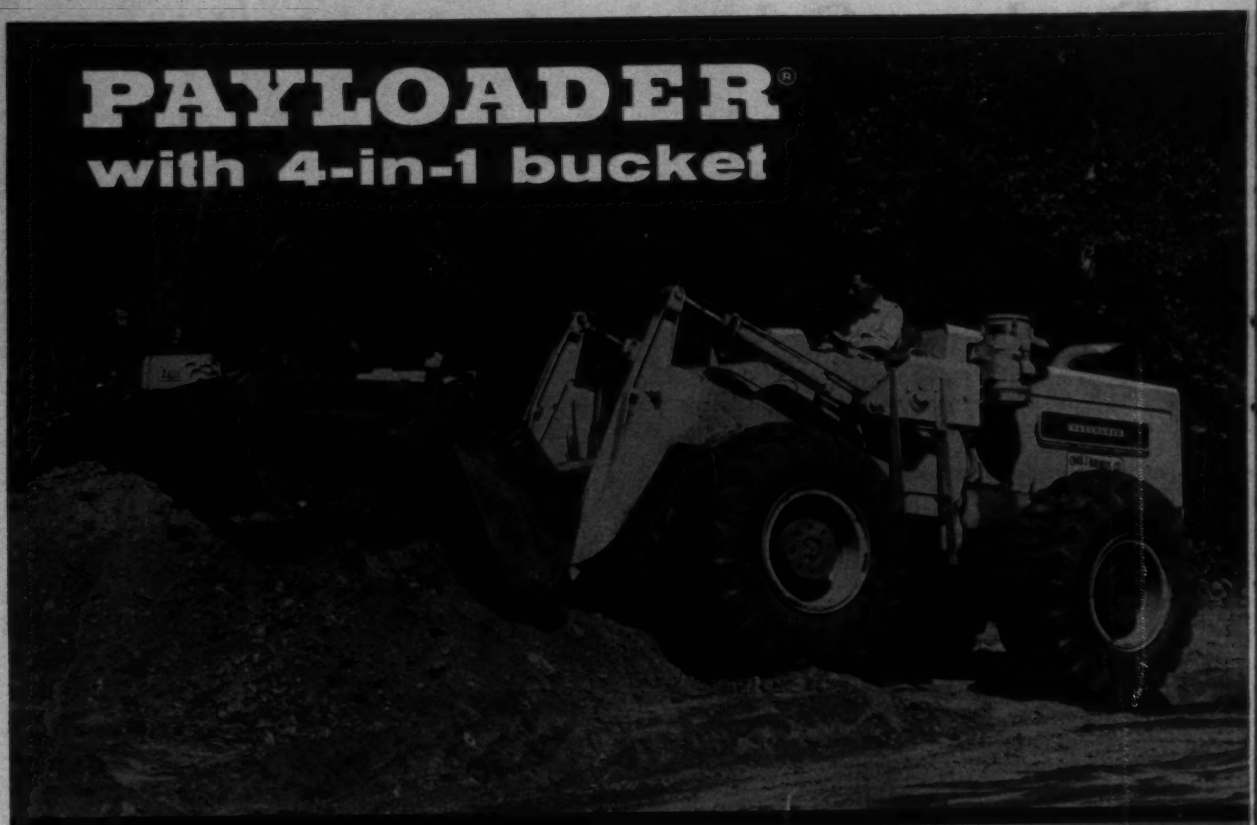

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Mr. C. J. Rounds, Jr. of C. J. Rounds Co. is speaking about their Model H-90 PAYLOADER tractor-shovel with Drott 4-in-1 Bucket that has served several months on this 1½-million-dollar contract with the Los Angeles Flood Control District.

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"We like its durability"

SAYS NEW YORK CITY CONTRACTOR

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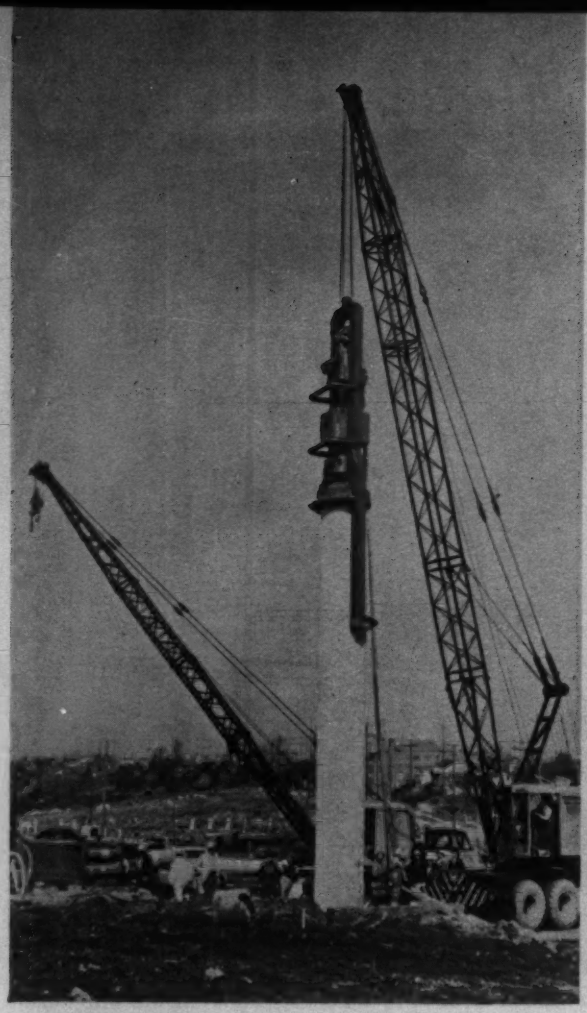


To test this prestressed concrete pile . . .

. . . loading frame is slipped over it . . .

Test Load on Large Piles Checks

Large prestressed concrete cylinder piles have been subjected to 390-ton test loadings, as part of a freeway-viaduct construction program in Seattle, Wash. With loading on the 4-ft-dia piles 50% over design load, maximum settlement during a 48-hour test was found to be only $\frac{1}{8}$ in.

The test was a check of design loads as determined by the 70-year-old ENGINEERING NEWS piledriving formula.

The piles were hollow; their shells were 5-in. thick. They were set in holes prebored to within about 5 ft of final bearing, then driven to 260-ton bearing capacity as determined by the formula. Driving force was provided by a 42,000-ft-lb Vulcan O-14, single-acting air hammer with a 14,000-lb ram.

As designed by the Washington State Highway Department, the Ravenna Boulevard overcrossing on the new Seattle Freeway includes 266 hollow precast, prestressed concrete piles up to 60 ft long and weighing as much as 24 tons. The specs required use of a 42,000-ft-lb pile hammer to drive the piles. And the specs called for the contractor—MacRae Brothers Construction Co.—to test load three piles as a check on the applicability of the pile driving formula to the particular conditions encountered.

The test-load program involved application of the 390-ton load in three equal increments.

The first two increments were left on for 24 hours each and the full 390-ton load remained for 48 hours. As maximum settlement under this 50% overload was $\frac{1}{8}$ in., a safety factor of at least one and a half was indicated.

Some authorities say the ENGINEERING NEWS formula is not applicable to dynamic drivers on heavy piles. Others say it doesn't apply for driving through plastic soils.

Material at the Ravenna Boulevard overcrossing is largely glacial till—granular. This fact could well explain the close correlation between the test-load program and the capacity of the piles as measured by the ENGINEERING NEWS formula.

The formula used is:

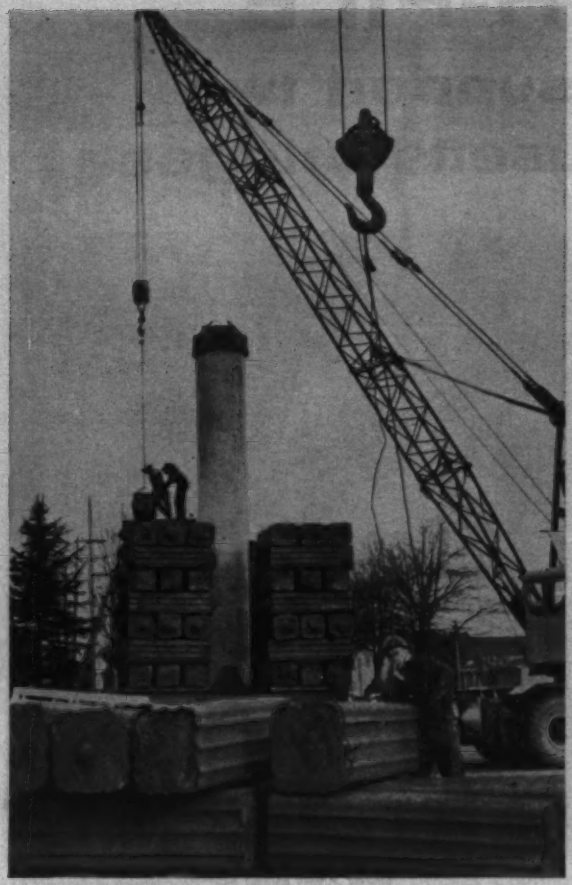
$$P = \frac{2Wh}{s + 0.1}$$

"P" is the allowable load on the pile, "W" is weight of the hammer, "h" is the stroke in feet, and "s" is the average penetration in inches for the last few blows.

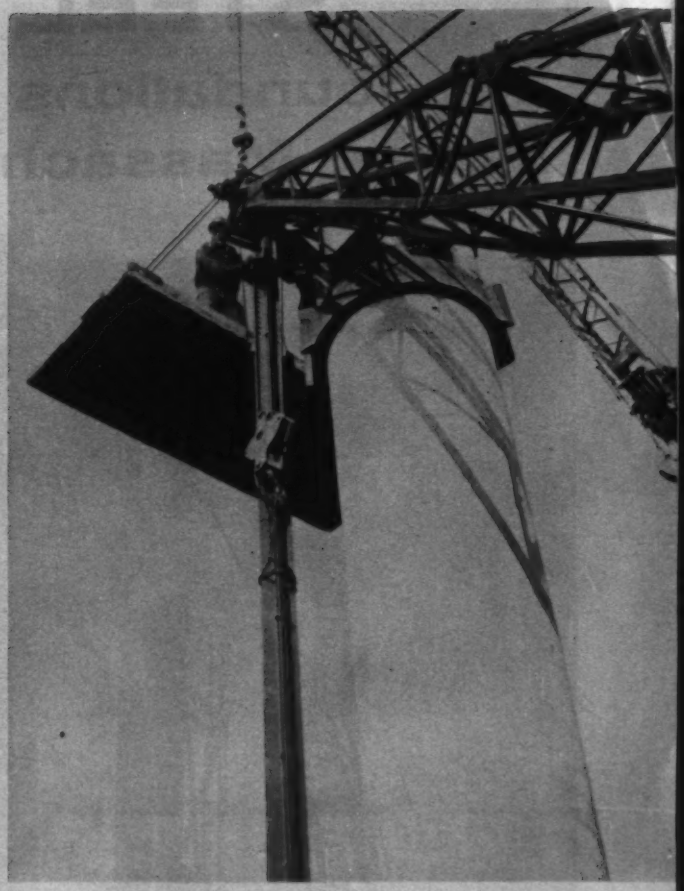
Holes to receive the piles were drilled by a 36-in.-dia bucket-type auger. After drilling to proper depth, wings were attached to the auger to enlarge the hole to 54 in.

The Vulcan O-14 hammer was mounted in a driving frame that slipped over the head of the pile. The frame was suspended from a truck crane during driving operations. The driving head consists of a 7,500-lb steel casting with hardwood cushions of three 1-in. layers of ironbark and three similar layers of oak.

Compressed air for the pile driving



. . . and four tons of steel ingots are piled on.



Steel hangers connect jacking, loading frames.

Driving Formula

operations was furnished by two 600 cfm air compressors feeding a 3x8-ft air receiver. The same set up is being used for all the pile driving on the job.

Steel ingots averaging four tons each were rented from a local steel mill to apply the test load. These were placed on a 16x16-ft structural steel cross frame resting on a timber-pile supported platform.

After the load was in place, a steel helmet was placed on the top of the huge concrete pile and a jacking frame positioned on top of this. Four hangers connected the loading frame and the jacking frame. Each hanger was composed of four 4x4x$\frac{7}{16}$-in. steel angles attached to the jacking frame and to the loading frame with $\frac{3}{4}$-in. high tensile bolts.

Four 150-ton hydraulic jacks were placed between the jacking frame and the steel helmet on the pile, the base in pockets on the helmet and the ram against the frame.

The test load was then transferred through the jacks to the piling. Automatic hydraulic pumping equipment kept pressures in the four jacks at the desired levels to produce the three test loadings. Note that with 400 tons of steel ingots and a maximum test loading of 390 tons, the full weight of the ingots was never completely supported by the test pile.

The piles are being supplied by Concrete Technology Corp. of Tacoma, Wash. Each pile has 10 tendons composed of four strands of 7/10 in. cable. Prestressing effort for each tendon is 38 tons.

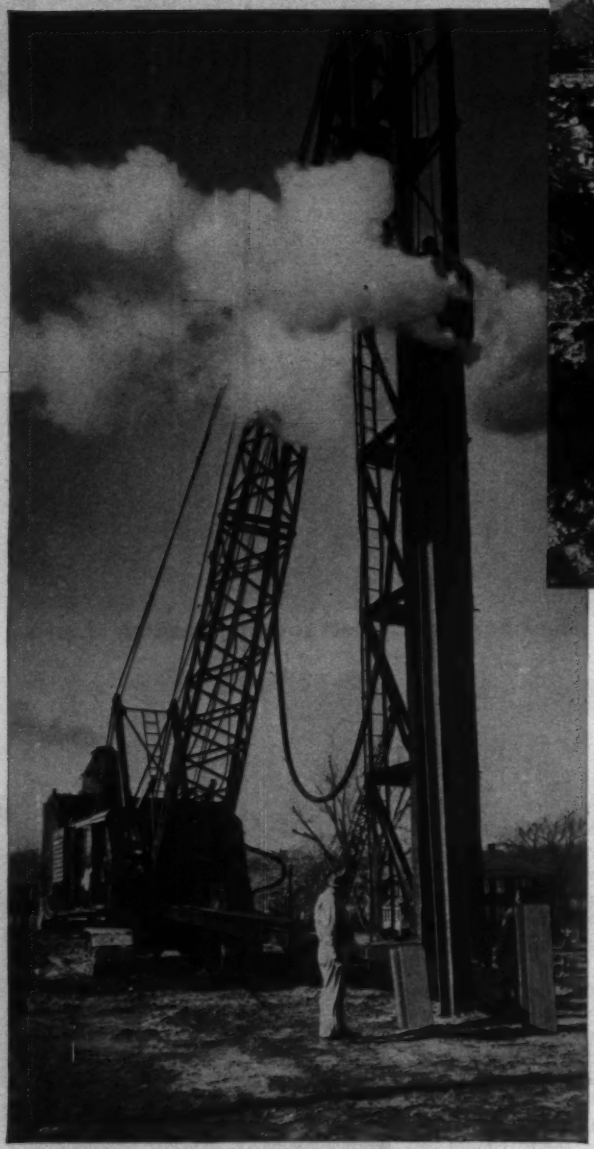
The MacRae contract totals $2,330,000. It will provide three parallel viaduct structures each 1,394 ft long. Two are 60 ft wide, while the other is 48 ft wide.

Ralph W. Finke is construction engineer in charge of the project for MacRae. The Washington highway department is represented by W. E. McKibben, district engineer, and Pierre Henrichsen, resident engineer.

Workmen connect hanger.

STEEL H-PILE
foundations support two new Massachusetts bridges

Over 450 steel H-piles were driven for the foundations of the Valley St. Bridge.



First of over 200 steel H-piles being driven to bedrock for abutments and piers for the new Webster St. Bridge.

Bethlehem steel H-piles were driven to bedrock for the foundations of two new six-lane bridges at Medford, Mass. For the Valley St. bridge, over 450 steel piles, 30 to 75 ft long, were driven to bedrock. At the Webster St. location, over 200 steel piles 80 ft long were driven for abutments and piers.

Both bridges are on relocated Route 28, which forms a part of the Interstate Highway System. Pile-driving contractor for both jobs was W. P. Carter Excavating Co., Inc., of Natick. Berke Moore Co., Inc., Boston, was general contractor.

BETHLEHEM STEEL COMPANY
Bethlehem, Pa.
EXPORT DISTRIBUTOR
Bethlehem Steel Export Corporation

Steel *for Strength ... Economy ... Versatility*

BETHLEHEM STEEL

BETHLEHEM STEEL

High, wide and handsome describes . . .

A Portrait of Peace River Dam

Main dam and generating plant dominate this artist's rendering of the proposed Peace River hydro project in British Columbia. The $610-million scheme, called "entirely feasible from an engineering point of view" by B. C. Water Comptroller A. F. Paget, may get under way this summer if the Public Utilities Commission and the government of British Columbia give the go-ahead.

Numerous snags have bogged down Peace River development (ENR Feb. 18, p. 34) including simultaneous plans for development of the Columbia River Basin (ENR Dec. 24, 1959, p. 20).

Brainchild of Swedish industrialist Axel Wenner-Gren, the over-all Peace River project reportedly involves at least two major dams, one of which will be 600 ft high and 7,000 ft long; a 550-mile-long, 500,000-volt transmission line; and a generating capactiy of 3.1 million kw.

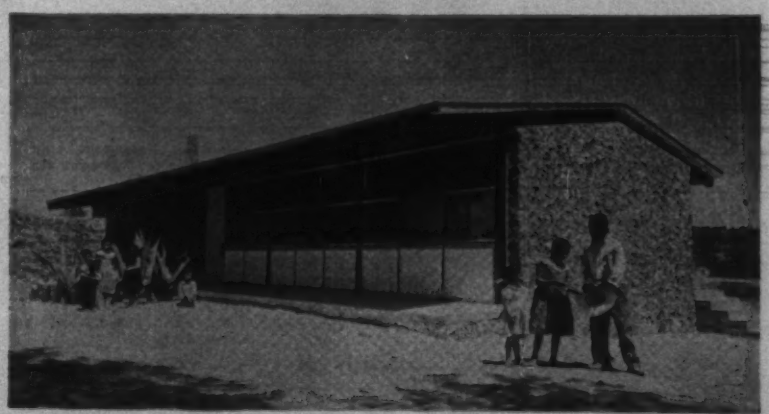
Mexico to Build Prefabricated Schools

The Mexican government will spend $6 million for building more than 2,000 prefabricated schools this year and next. The schools, all to go in rural areas, will cost $2,800 for a basic unit.

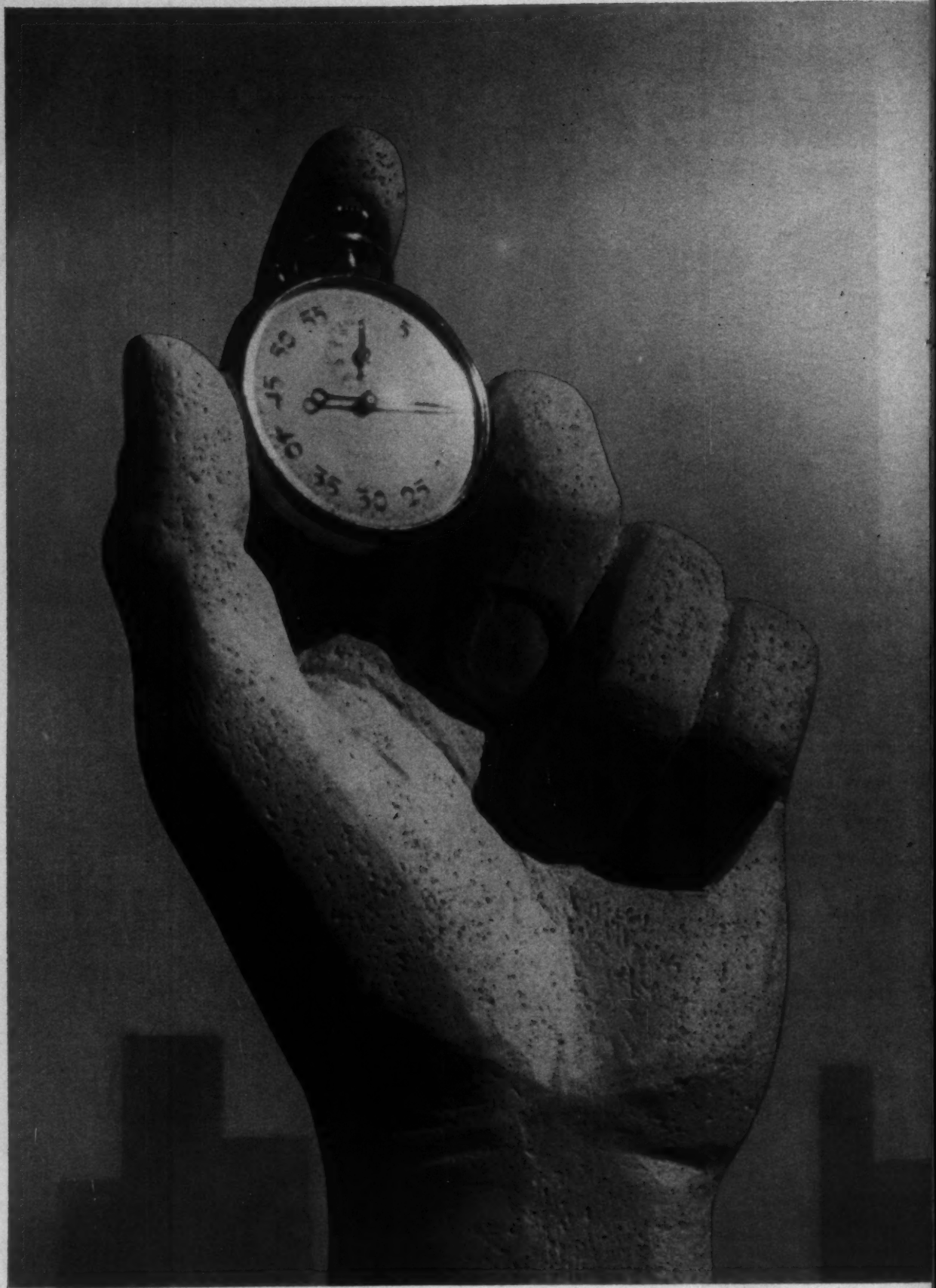
A school building measures 20 ft by 59 ft and is divided into a study area for 50 students and a living area for the teacher and family.

An innovation is the structure's plumbing wall, which is made of fiber glass and polystyrene. A plastic toilet, lavatory and sink are mounted on the wall. A plastic water tank and plastic pipes are inside the wall.

Gonzales del Sordo Ramiro and Ramirez Vazques Pedro supervised the school design. At present 220 units are distributed to local areas.



Community schools are completed with local labor and materials.

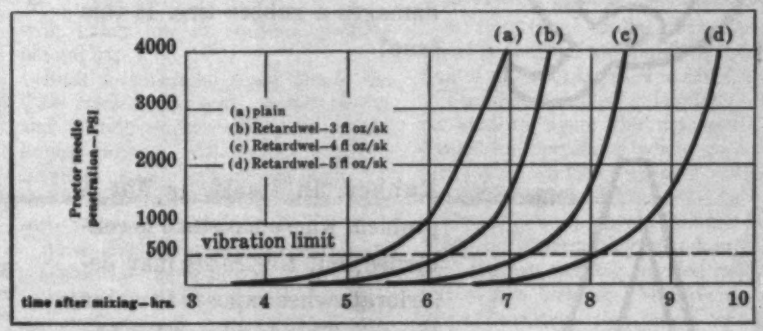


Control concrete setting time with J-M Retardwel

...the hot weather admixture that gives up to 50% higher 24-hour strength.

Retardwel®, a product of Johns-Manville, world's largest industrial user of portland cement, is the liquid admixture that controls concrete setting time and prevents premature stiffening due to high temperatures *without* loss of early strength.

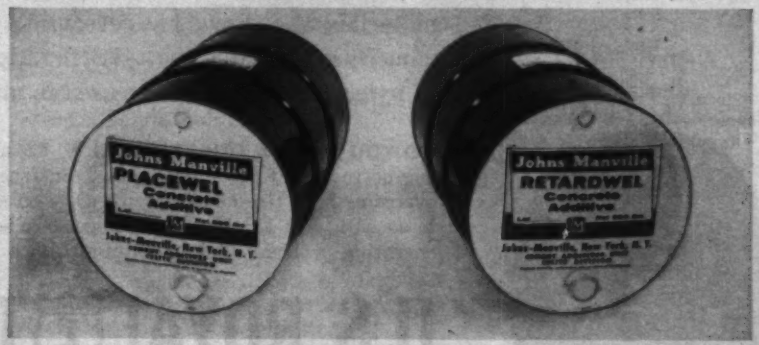
Retardwel permits a reduction in the water required for proper placing and provides all the advantages of concrete fabricated with a minimum paste content. Its use delays the initial set of concrete and provides a slower rate of heat evolution, thereby minimizing thermal stresses. Therefore, the use of Retardwel will aid in eliminating shrinkage cracks. Only 3 ounces of Retardwel per sack of cement will control setting time (see chart) and still increase 24-hour strength as much as 50%.



Retardwel's unique properties will also—

■ Increase durability ■ Improve dimensional stability
■ Increase workability ■ Reduce permeability ■ Increase density

For normal weather conditions, J-M Placewel® is recommended. Johns-Manville's two concrete admixtures have gained the acceptance of architects and engineers throughout the world. For full information write: Johns-Manville, Box 14, New York 16, N. Y.



JM JOHNS-MANVILLE

Celite Division

Fourth of a Series

TIRE TALKS

On the record—off the road

Leading U. S. Rubber scientists and engineers answer questions on recent advances in off-the-road tires for which they were in a large measure responsible

Q Our trucks often operate under muddy conditions. I was surprised to hear that moisture damages a rubber tire. Is this true?

A Rubber, in itself, is not a problem where moisture is concerned, but *tire cords* may deteriorate when exposed to water by cuts. This is why nylon has become the accepted cord material for U.S. Royal OTR tires. Nylon's toughness and superior strength, compared to rayon, make U.S. Royal tires much less vulnerable to rupture and cuts. At the same time, nylon has proved to be much more resistant to deterioration caused by exposure to dampness. In its continuing search for superior materials, U.S. Royal has developed a double-denier nylon for increased tenacity and greater resistance to fatigue and heat. In 1960 this advance in nylon technology will be used in all U.S. Royal OTR tires.

Mr. C. F. Engstrom, manager of off-road tire development. He and his staff of engineers have been instrumental in introducing many highly technical advances and innovations in specialized U. S. Royal tires.

DO YOU HAVE A QUESTION? U. S. Royal development engineers have custom-engineered many tires and special constructions to meet specific conditions or to overcome high tire or shut-down costs on specialized operations. You are invited to consult with Mr. Engstrom if you are seeking a solution to an individual tire operating problem. Write to him at

U.S. ROYAL SAFETY 1st TRUCK TIRES

United States Rubber

1230 Avenue of the Americas, New York 20, New York

Torch Cuts a Deep Path

A natural gas cutting torch that can slice through 30 in. of metal in a single pass has been introduced under the name Oxweld C-66 Cutting Torch. It has the largest gas flow—up to 3,000 cfh of oxygen and 250 cfh natural gas—and the widest cutting range—from sheet metal to large risers—of any existing natural gas hand cutting torch.

It will handle every manual cutting job encountered in foundries, mills, fabricating shops, and scrap yards. Special applications, such as gouging, rivet piercing and pad and fin washing, are also handled by the new torch.

Interchangeable injectors make it possible to use the new Oxweld Torch with either low or medium pressure natural gas.

Built to withstand severe abuse, the C-66 torch head, body, preheat valves and cutting-oxygen valves are rugged bronze forgings. All tubing is nickel-silver to provide rigidity and high corrosion resistance. Valve stems have wear resistant stainless steel ball tips.

More than 40 different nozzles are available for use with the C-66 torch, including nozzles for scarfing, gouging and rivet cutting. Long length bendable nozzles can be used for cutting on jobs in hard-to-get-at places. Linde Co., Division of Union Carbide Corp., 270 Park Ave., New York 17, N. Y.

Safety Hoist Goes Up Fast

The 1,500-lb-capacity Buck Hoist-Tower sets itself up and operates with an automatic floor selector control cable.

The simple floor-selector mechanism and safety lock have four cutouts of varying size. Floor stops are simply set at the proper point on the control cable so that the platform will stop at any of the four preselected heights. The safety lock prevents the platform from moving either while loading or unloading.

The automatic hoist tower has a hoisting speed of 100 ft per min., is trailer-mounted and self-erecting to a height of 45 ft. Additional tower sections come in 5- and 10-ft lengths.

The new Model, GA-15-H, has a planetary-type transmission and can be supplied with either 9- or 12-hp. gasoline engines or electric motors. Electric starting, platform safety devices and controls for 45-ft erecting height are included as standard equipment. Platform size is a full 5x6 ft.

Traveling on the road, the trailer-mounted hoist is 6 ft 8 in. wide, 18 ft long and stands only 12 ft 3 in. high. Total weight with a standard 25-ft tower is 3,685 lb.

The hoist tower is completely self-erecting with the standard tower sections. As the tower frame goes up the retractable wheels automatically rise lowering the channel iron base section which becomes the base of the tower during operation. All cables are galvanized and equipped with swagged fittings except for hoisting cables. Buck Equipment Corp., 720-X Anderson Ferry Rd., Cincinnati 38, Ohio.

Elevating Attachment Goes on Cat Grader

The DOMOR Model 64 elevating grader attachment features a 48-in. belt, 36-in. disk, and capacity up to 900 cu yd per hr. It is designed to fit the Caterpillar No. 14 Motor Grader.

A mechanical arrangement on the Model 64 prevents accidental damage to the loading belt by the plow disk during operation.

This is accomplished by a pivoted connection between the lower end of the conveyor and the disk beam, which always keeps the disk at a predetermined distance from the belt.

The conveyor frame members and sideboards are of one piece construction. Conveyor lengths up to 31 ft are available. Ulrich Manufacturing Co., Roanoke, Ill.

Wheel-Type Calculator Figures Piping Man-Hours

A four-color, cardboard computer-wheel is designed to simplify determination of the labor required to install pipe.

The device, called a Laborator, can be used to figure the man-hours required for operations where pipe and fittings are welded, screwed, soldered or caulked with lead.

One side of the wheel-card has a computer for determining man-hours per weld for butt welding, nozzled welding, and slip-on welding. Multiplying the proper butt-weld labor by .75 will give labor for socket welding, the maker claims.

On the reverse side, man-hours per fitting on copper pipe, screwed pipe, and screwed waste and vent piping systems can be computed. Number of lead joints per man-day, underground and above, can also be figured on this wheel, the manufacturer says. Charles M. Adams, Box 9101, Huntington 4, W. Va.

Color for Steel Won't Fade, Chalk or Peel

Stainless steel coated with a color that stays where it should, on the metal, is being introduced in 11 colors under the name ColorRold.

The ColorRold process coats sheets or coils of stainless steel to a depth of ½ to 2 mils. The 11 standard colors will not fade, chalk or peel, according to the manufacturer.

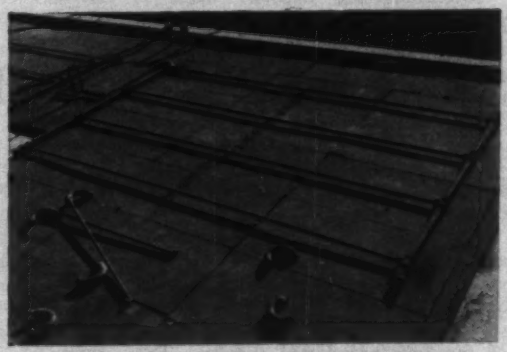
ColorRold stainless compares favorably in price with any of the other colored architectural metals and is well suited for stamped panel fabrication, the manufacturer says. Washington Steel Corp., Washington, Pa.

At the end of the day, **steel pipe** brings the comforts of home to the airmen of tomorrow

Saturday's parade ends a schedule-filled week for 1,500 cadets at the U. S. Air Force Academy near Colorado Springs. From the parade grounds the cadets return to their quarters . . . the world's most modern in comfort and convenience for housing the nation's air-leaders of tomorrow.

Steel pipe contributes much to making the Academy the world's finest. For radiant heating over five miles of *steel pipe* were used. In the 17,800 acre Academy Complex, the plumbing, vent and drainage lines were fabricated from *steel pipe*. And, it was used because—in an evaluation of service life, ease of fabrication, availability and cost—*steel pipe* proved superior to any other tubular product.

At the U. S. Air Force Academy, as in buildings throughout the nation, *steel pipe* is the perfect, low cost tubular conductor of water, gas and oil. The high thermal conductivity and structural strength of *steel pipe* make it ideal for many applications including radiant heating, cooling, refrigeration, ice making, snow melting, electrical conduit and myriads of residential, commercial and industrial applications.



Prefabricated steel pipe sections resulted in quick and easy installation for the radiant heating system at the Academy. Because the coefficient of expansion of steel pipe and the concrete slab in which it's embedded are compatible—long service life is assured.

STEEL PIPE IS FIRST CHOICE

- Low cost with durability
- Strength unexcelled for safety
- Formable—bends readily
- Weldable—easily, strongly
- Threads smoothly, cleanly
- Sound joints, welded or coupled
- Grades, finishes for all purposes
- Available everywhere from stock

INSIST ON PIPE MADE IN U.S.A.

COMMITTEE ON STEEL PIPE RESEARCH

150 East Forty-Second Street, New York 17, N.Y.

W. A. Rose Takes Key Perini Post

Perini Corporation of Framingham, Mass., has announced the election of W. A. Rose as executive vice president and general manager of the company.

In his new position, Mr. Rose will be the president's representative in general charge of all jobs. In addition, he will remain as president of one of the company's subsidiaries, Majestic Contractors, Ltd. Majestic is the pipeline laying member of the Perini family of companies.

A native of Franklin, Pa., Bill Rose started in the construction field with the Pennsylvania Department of Highways. After four years there he did a short stint as advertising manager for Joy Manufacturing Co., before World War II interrupted.

In 1944 Mr. Rose went into pipeline construction with Anderson Brothers, a Houston concern. He became manager of their operations in the eastern U.S. and was soon vice president in charge of all field operations. In 1952 he became executive vice president and general manager of the corporation.

Mr. Rose moved to Majestic in 1956 to take the presidency of that Canadian company. Since then the company has laid hundreds of miles of natural gas mainline and distribution lines as well as oil pipelines and oil gathering systems.

WILLIAM A. ROSE is now general manager and executive vice president of Perini Corp.

Some of the more important projects with which Mr. Rose will be concerned as Perini's general manager are the William F. Callahan Jr. Tunnel in Boston; an eight-mile water tunnel at Marlboro, Mass.; the Mayfield Dam at Tacoma City, Wash.; the Everett Hopkinson Dam in New Hampshire; and the Ft. Gaines Lock on the Chattahoochee River, the Georgia-Alabama border.

Bill Rose will try to co-ordinate some of his many trips to Perini jobs with the league schedule of the Milwaukee Braves Baseball Club, for he is one of their directors. If he is successful, he may run into his boss, Lou Perini, who is chairman of the team's board of directors.

Moles Elect Chester Cambell

The Moles, an association of outstanding heavy-construction engineers and executives has elected Chester W. Cambell as its president. He succeeds Mansell L. MacLean, president of MacLean-Grove & Co., Inc., New York City.

Mr. Cambell is president of The Foundation Co., also of New York City, and has been with the company for most of his 35 years in heavy construction. He joined the company in 1926 upon graduation from the University of Maine.

In the period 1933-38 he was examining engineer with the Federal Emergency Administration of Public Works, working in Washington and New York. In 1938-42 he was borough superintendent, Department of Housing and Building, New York City, in charge of the borough offices of Richmond, Queens and Manhattan.

Mr. Cambell is a member of the American Society of Civil Engineers, the National Society of Professional Engineers, the Railroad and Machinery Club and the Engineers' Club, among others.

Chester W. Cambell

G. E. Morris Retires, LA Slum Clearer

Gilbert E. Morris, General Manager and Superintendent of Building for the City of Los Angeles, will retire at the end of this month. A past president of the American Society of Building Officials, he is well known for work in slum clearance and building codes.

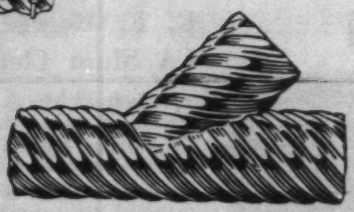
Mr. Morris has devoted his entire career to Los Angeles since graduating from the University of California in 1924. In his present position, which he has held for the last 19 years, Mr. Morris has developed a modern, workable system of building codes that has been widely copied.

His conservation and slum clearance program, which depends entirely on private enterprise, has eliminated many of Los Angeles' blighted areas. In 1959 he was appointed to the state building standards commission.

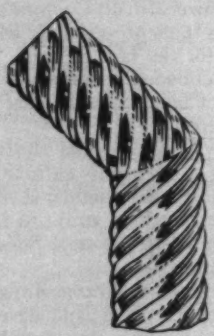
Mr. Morris plans to do consulting for engineering projects and land development. He also hopes to do research on new construction methods and materials.

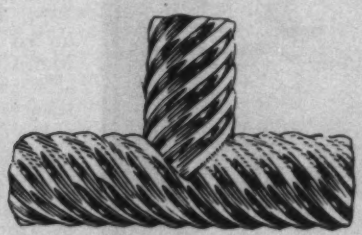
So dependable, you install it...and forget it...

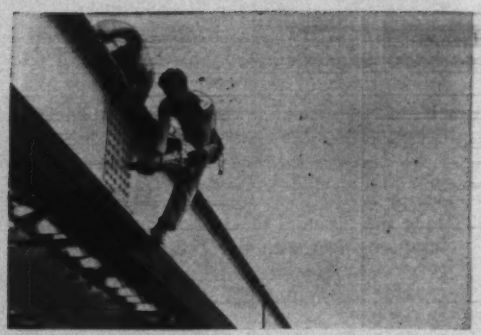
NEW



LOK-COR FITTINGS







REPUBLIC HIGH STRENGTH BOLTS helped speed construction and keep costs down in this 850-Ft. overpass, West 140th St., Cleveland, Ohio. The contractor, Hunkin-Conkey Construction Co., Cleveland, estimates that assembly costs were up to 50% less than with rivets. For more data on the superior performance and economy of Republic High Strength Bolts, send coupon.

REPUBLIC LOK-COR

with exclusive DOUBLE LOCK SEAM

Subdrainage performance standards move up a mark with the introduction of new Republic Lok-Cor . . . the double lock seam corrugated subdrainage pipe.

Lok-Cor . . . so dependable it can be installed for removal of ground water with complete assurance that the system will function indefinitely without maintenance. It's there to stay. Put Lok-Cor under shifting loads, or under severe freezing and thawing conditions. It will not unravel or become disconnected to interrupt service.

Check over the many other quality features (see list below) that make Lok-Cor the new leader in subdrainage pipe. Then look for the double lock seam the next time you buy subdrainage. Send coupon for complete information, or contact your nearest Republic Drainage Products Distributor.

CHECK THE FEATURES YOU WANT • LOK-COR HAS THEM ALL

- Economical . . . easy to install
- Positive Double Lock Seam
- Helically corrugated for strength
- Made from highest quality Republic Continuous Galvanized Copper Steel
- Corrosion-resistant, full 2-ounce galvanized coating
- Furnished perforated or non-perforated
- Meets all current specifications
- Available in 6″, 8″, and 10″ diameters, 16 and 18 gage . . . 20′ lengths

REPUBLIC PLASTIC PIPE FOR COOLING TOWER INSTALLATIONS costs less than half as much as copper pipe and is easier to install. In addition, Republic SRK® (Semi-Rigid) Plastic Pipe effectively resists highly corrosive action of liquids in these towers. Send coupon for more information on plastic pipe in air conditioning installations.

REPUBLIC STEEL

World's Widest Range of Standard Steels and Steel Products

REPUBLIC STEEL CORPORATION
DEPT. PK-9677-A
1441 REPUBLIC BUILDING • CLEVELAND 1, OHIO

Please send more information on:

- ☐ LOK-COR Subdrainage Pipe
- ☐ High Strength Bolts
- ☐ SRK® (Semi-Rigid) Plastic Pipe

Name_____ Title_____

Company_____

Address_____

City_____ Zone____ State_____

NEW!

2½-lb. Pressurized Dry Chemical

5-lb. Pressurized Dry Chemical

Kidde dry chemicals kill more fire faster!

Granted top rating by Underwriters' Laboratories, these two new Kidde dry chemical extinguishers pack the *extra* punch you need to knock out stubborn blazes. These 2½- and 5-pound Kidde units put out as much fire as eight and sixteen one-quart carbon tetrachloride portables respectively. They are perfectly balanced for fast action, are light in weight, easy to operate even while wearing gloves. And — no pin to remove, no valves to turn, no inverting or bumping needed. Just aim at fire and press the lever! Pressurized, they can be easily and quickly recharged with air or nitrogen. No pressure cartridge needed. Write for more information on these new Kidde extinguishers — easiest-to-operate of all dry chemical portables.

Kidde

Industrial and Marine Division
Walter Kidde & Company, Inc.,
644 Main St., Belleville 9, N. J.
Walter Kidde & Company of Canada Ltd.
Montreal—Toronto—Vancouver

Obituaries

Albert Stevenson, 70, New York Civil Engineer

Albert Stevenson, a partner in the New York consulting engineering firm of Seelye, Stevenson, Value & Knecht.

Mr. Stevenson had been with the firm since he received his civil engineering degree from Cornell University in 1913. He designed all types of industrial plants, buildings, foundations and airports.

Among his projects are the Grumman Aircraft plants at Bethpage and Calverton, L. I., and the Wallington Tube Corp. plant at Wallington, N. J.

He had recently been helping prepare a report sponsored by the State Division of Housing on methods of reducing the cost of public housing.

London Architect Dies, Helped Shape Prewar City

Charles Holden, architect of London skyscrapers and subway stations, has died at the age of 84.

Mr. Holden was the sole architect for the towering London University Buildings in 1931 and designed the city's other prewar skyscraper, the London Transport Office Building. He designed the Piccadilly Circus subway station and nearly 30 other subway stations in and around London.

In the early nineteen hundreds, Mr. Holden began his career with a rebellion against the prevailing Victorian gimcrack. His conservative buildings helped set the style of architecture in London between the wars.

His other work includes structures at Edinburgh University and a reconstruction plan for part of London's finantial district devastated during World War II.

Samuel T. Goldsmith former chief engineer, Bureau of Purchases, New York City. Earlier he had been an engineer on subway and other heavy construction for three different contractors —Marcus Contracting Co., Thomas Crimmins Co., and the Woodcrest Construction Co.

Mexico Glazioner, 51, Bureau of Reclamation engineer of Weslaco, Tex. He had been one of the engineers on the Altus irrigation project in Oklahoma.

Lawrence L. Jemison, 73, chief bridge designer for the North Carolina State Roads Commission.

Robert S. Brooks, 71, St. Louis consulting engineer and retired member of the City Plan Commission.

Airport Operator: The Port of New York Authority • Architect: A. Gordon Lorimer, FAIA, New York
Structural Engineers: Strobel & Roegved, New York • Mechanical Engineers: Slocum & Fuller, New York
Contractors: Carl Buhr, Inc., New York • Photographer: Frank Ufert, New York

A Design and Engineering Achievement in REINFORCED CONCRETE

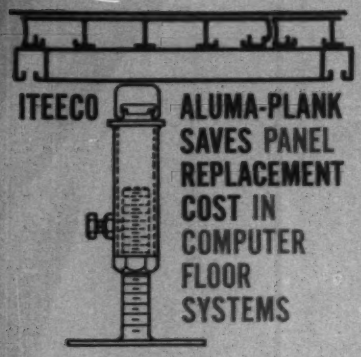
Like a mother hen, the new control tower at the Newark Airport is the guardian for the many aircraft which land and take off from this terminal every day.

Constructed of reinforced concrete, this structure rises 150 feet above the runways. Three floors containing all air traffic control equipment are cantilevered out to a 37-foot overhang to provide an optimum view of all air and ground traffic.

Today, in every type of construction, reinforced concrete is enabling architects and engineers to work with greater freedom in designing buildings to more readily meet a functional intent. Before you build, be sure to investigate the many advantages of this more flexible and more economical construction method.

Concrete
Reinforcing Steel Institute
38 South Dearborn Street
Chicago 3, Illinois

7-A



ITEECO ALUMA-PLANK SAVES PANEL REPLACEMENT COST IN COMPUTER FLOOR SYSTEMS

Save up to 6 ft. of flooring ordinarily lost when repaneling access openings. Use Aluma-Plank 9" x 27" sections.

ITEECO'S new, lightweight extruded aluminum flooring is the only modular plank system available.

ITEECO

INDUSTRIAL TUBULAR EQUIPMENT CO.

12906 Saticoy, North Hollywood, California
TRiangle 7-9821

WATER WORRIES?

Deep sea divers go broke on your job site when you specify faster dewatering specialists, equipment and service from

John W. STANG Corporation

Los Angeles • Omaha • Tacoma • St. Petersburg

Three kinds of pipe are priced for . . .

Sewerage System Extensions

Contracts for a gravity sewer and an intercepting sewer, part of a sanitary sewerage extension project now under way for the Ewing-Lawrence, Sewerage Authority, Mercer County, N. J., were awarded as follows:

Contractor & Work to be Performed	Amount of Award
Augustus Construction Co., West Orange, N. J. For Sect. V Gravity sewers in Lawrence Township	$ 21,585
Joseph Miele Construction Co., Inc., bidding jointly with C. Salvatore & Sons, Maplewood, N. J. For intercepting sewer in Ewing Township	188,500
Total awards	$210,085

Buck, Seifert & Jost, New York City, is the consultant.

Since federal aid is involved, the award on the North intercepting sewer was delayed pending government approval.

For the gravity sewers, 2,070 lin ft of 8 in, vitrified clay sewer pipe and 1,025 lin ft of 8 in. asbestos cement sewer pipe will be laid in cuts of 6 to 14 ft. An additional 580 lin ft of vitrified clay pipe will go into house connections.

For the intercepting sewer, 18,165 lin ft of 8 to 18 in. vitrified clay sewer pipe, and 260 lin ft of 8-and 18-in. cast-iron pipe will be laid from depths of 0 to 18 ft.

Both contracts include excavation; backfill; furnishing and hauling of materials; laying and placing of pipe and appurtenances; bituminous pavement; and related work. One railroad crossing and six stream crossings are included in the intercepting sewer contract.

Gravity Sewers

1C Augustus Constr. Co., West Orange, N. J.	$21,585
2 Penn-Jersey Contractors., Inc., Trenton, N. J.	34,387
10 J. Vinch & Sons, Inc., Trenton, N. J.	57,190

Bids: 2-18-60 Items	Unit	Quan-tity	Unit Prices 1C	2
*Vit clay sew pipe, 6" hse conn	lf	580	$3.60	$3.00
8" pipe, depth 6–8'	lf	720	3.75	5.75
8–10'	lf	1,350	3.75	7.50
*Asbestos cement sewer pipe, 8", depth 6–8'	lf	420	3.85	5.25
8–10'	lf	290	3.90	6.90
10–12'	lf	205	4.30	11.00
12–14'	lf	110	4.60	12.00
**MH on sewers, depth 0–9'	ea	4	200.00	255.00
9–13'	ea	8	205.00	300.00
drop connection	ea	1	50.00	75.00
Chimney, furn, haul & construct	ea	14	5.00	25.00
Wye, 8" x 6", furn, haul & lay	ea	120	9.00	6.30
Excavation, rock	cy	175	0.50	1.00
earth, added	cy	160	4.00	1.50
Conc msnry, cl B, add or omit	cy	2	50.00	35.00
Brick msnry, add or omit	cy	2	50.00	25.00
Sheeting left in place	Mfbm	5	1.00	250.00
Lumber in foundations	Mfbm	1	200.00	100.00
Grav & sand-cmt mix, fndns, graded grav or cr stn	cy	160	0.50	6.50
run of bank gravel	cy	50	5.00	3.00
Permanent pvmt, exc trim & replace, bit hot patch	sy	1,300	1.90	2.25

Completion schedule: 200 cal days
Liquidated damages: Extra engrg supervision costs

North Intercepting Sewer

1C Joseph Miele Constr. Co., Inc. and C. Salvatore & Sons, Maplewood, N. J.	$188,500
2 Penn-Jersey Contractors, Inc., Trenton	217,804
12 J. Vinch & Sons, Inc., Trenton	261,183

Bids: 2-18-60 Items	Unit	Quan-tity	Unit Prices 1C	2
*Vit clay sewer pipe, 8", depth 0–6'	lf	580	$3.00	$3.65
6–8'	lf	820	3.00	4.00
8–10'	lf	2,580	3.50	4.30
10–12'	lf	80	4.00	5.40
12–14'	lf	30	5.00	8.00
14–16'	lf	20	7.50	11.00
12", depth 10–12'	lf	360	7.00	9.00
12–14'	lf	220	7.00	10.50
14–16'	lf	1,050	8.50	13.50
16–18'	lf	900	10.00	16.50
15", depth 8–10'	lf	1,260	7.50	8.20
10–12'	lf	1,225	8.00	10.70
18", depth 6–8'	lf	340	7.50	9.90
8–10'	lf	7,470	8.00	10.50
10–12'	lf	930	11.50	13.00
12–14'	lf	280	13.50	14.00
*Cast iron pipe, 8", depth 0–6'	lf	60	6.50	5.50
6–8'	lf	80	7.00	5.70
8–10'	lf	80	8.00	6.00
18", depth 0–6'	lf	20	15.00	14.00
6–8'	lf	5	16.00	14.70
8–10'	lf	45	17.00	15.00
10–12'	lf	10	20.00	16.00
12–14'	lf	10	21.00	17.00
**MH, std, depth 0–9'	ea	23	250.00	250.00
9.01–13'	ea	30	325.00	280.00
13.01–18'	ea	8	425.00	320.00
drop connection	ea	3	25.00	80.00
***Crossings, RR at sta 39+70	ls	job	4,000	1,400
stream at sta 72+20	ls	job	100.00	650.00
sta 154+10	ls	job	100.00	300.00
sta 155+50	ls	job	100.00	300.00
sta 162+80	ls	job	100.00	580.00
sta 170+75	ls	job	100.00	420.00
on Trenton Teachers Coll intercept, sta 0+50	ls	job	100.00	500.00
Excavation, rock	cy	1,500	10.00	6.00
earth, added	cy	900	0.50	1.80
Conc msnry, cl B add or omit	cy	10	40.00	40.00
Brick msnry, add or omit	cy	5	40.00	5.00
Sheeting left in place	Mfbm	10	250.00	130.00
Lumber in foundation	Mfbm	5	250.00	90.00
Grav & sand-cmt mix in fndns for bkfl or other use, graded grav or gr cr stn	cy	1,000	7.00	6.00
run of bank gravel	cy	400	3.00	2.00
sand-cmt mix	cy	100	20.00	7.50
Pavement, place & maintain temp, exc, trim & replace: bituminous concrete	sy	40	3.25	5.00
hot patch	sy	20	3.00	3.00

Completion schedule: 180 cal days
Liq. dam.: 0.2% of final estimate/day, plus extra engrg supervision cost.

* Incl excavation, backfill, furn, haul & lay pipe
** Incl exc, bkfl, furn, haul, place matl & construct
*** Incl furn, haul & place materials & construct

Georgia Highway Prices

Stiff competition reflected in 1959 unit price drop

Selected Items	Unit	Avg. Low Bid Prices on Principal Items 1958	1959
Excavation, uncl	cy	$0.27	$0.256
Conc, cl A, culverts & bridges	cy	46.63	40.95
Steel, bar reinforcing	lb	0.134	0.128
Conc C.D. pipe, 15"	lf	3.03	2.97
18"	lf	3.83	3.49
24"	lf	5.27	5.18
30"	lf	7.34	6.92
36"	lf	10.16	9.79
42"	lf	13.19	11.92
48"	lf	15.75	14.43
54"	lf	18.37	17.00
60"	lf	25.83	23.72
Riprap, plain	sy	5.94	5.80
Base material, local	cy	0.56	0.55
Shoulder material, selected	cy	0.58	0.63
Subgrade treatment material	cy	0.53	0.50
Single surf treatment, type 1	sy	0.21	0.185
Liquid seal	sy	0.13	0.130

Materials and Labor Prices

Monthly Market Quotations by ENR Field Reporters

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8x8x16-in.,* truckload del.,* per block		CONCRETE Ready Mixed 1:2:4 del. per cy 50 cy & over
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg.	
Atlanta	$4.35a‡	$3.85a‡	$3.65a‡	$3.10a‡	$3.10a‡	$1.85‡a	$2.15a	$2.35a	$1.65r	$1.75r	$0.175o	$0.21o	$13.75g
Baltimore	4.42a	3.91a	3.56a	2.80‡a	2.80‡a	2.25‡a	2.85‡a	2.90‡a	2.05‡a	2.00‡a	.15a	.15a	13.50ma
Birmingham	4.43r	3.40r‡	.....	2.53ar	2.53ar	2.12ar	2.75a	2.75a	1.65d	1.75d	.19	.19	14.25g
Boston	5.53ip	4.53ap	4.90imp	3.00qar	3.00qar	3.00qar	1.75qar	1.85qar	.....	.....	23o	275ao	15.00g
Chicago	4.52aq	4.02aq	4.15g	3.78‡r	3.78‡r	3.06‡r	2.28‡a	2.28‡a	2.28‡a	2.28‡a	.30‡a	28‡‡a	13.50r
Cincinnati	4.34r	4.34r	4.31r	3.29‡ru	3.34‡ru	2.44‡ru	2.51‡ru	2.74‡ru	1.80u	1.80u	.19o	25au	15.00qr
Cleveland	4.77‡/.84‡	.....	4.19‡ar	.....	2.25ar	1.75ar	2.70‡y	2.70‡y	2.20‡f	2.20‡f	.....	23‡	17 25u
Dallas	3.65a	3.25a	3.53a	2.65‡a	2.75‡a	1.90‡	2.47	2.67	.....	.....	.25	.285	13.10r
Denver	4.55a	4.35a	4.89	1.95‡	2.15‡	1.42‡b	.....	3.00‡r	.....	.....	.25	.27ao	11.90
Detroit	4.50a	3.99aqy	3.97a	4.80‡ahu	4.80‡ahu	4.25‡ahu	3.75‡ahu	3.75‡ahu	2.85aqas	2.85aqas	.34u	37‡au	15.50aas
Kansas City	4.52a	3.92a	4.30a	.....	.....	1.85‡a	2.00‡a	2.00‡a	.....	.....	22a	26r	14 50
Los Angeles‡‡	5.12ah	4.62ah	5.60r	2.50‡af	2.70‡af	2.41‡af	2.41‡af	2.46‡af	.....	.....	255/	305	12 40‡k
Minneapolis	4.65a	4.15a	4.25a	2.70‡ar	2.70‡ar	1.60‡ar	3.95‡ar	3.95‡ar	.....	.....	30y	.....	14.20/
Montreal	3.36‡dr†	3.11‡dr†	3.72‡dr†	1.90‡r†	2.15‡r†	2.40‡a	1.90††	2.15††	2.00†	2.00†	30†	.28‡†	10 80+t†
New Orleans	4.17b	3.63b	3.97b	2.61b	.....	2.16b	.....	.....	1.62d	1.75d	.29r	.30	14.00r
New York	4.65a	4.15a	3.75a	.....	3.20bb	2.20bb‡u	2.20bb‡	2.20bb‡	.....	.....	.265aas	.325as	17.00ay
Philadelphia	4.40‡ar	3.90‡ar	3.51‡r	1.95‡a	1.95‡a	1.55‡a	2.00‡a	2.30‡a	2.35‡a	2.35‡a	.....	.325	13 90r
Pittsburgh	5.65bjk	4.65bj	5.00bjl	2.65‡aqv	2.65‡aqv	3.05‡aqv	2.00‡aqv	2.00‡aqv	2.10av	2.10av	.26rz	.26rz	18.15r
St. Louis‡‡	4.54a	4.04a	4.24a	3.40‡as	3.40‡as	2.40/3.40‡as	1.75‡a	1.75‡a	.....	.....	.28‡a	.32‡as	13.65/14.10y
San Francisco	4.34r	3.79r	4.78r	2.02	2.02	2.12	2.17	2.17	.....	.....	.34	.35cl	13.00as
Seattle	4.47‡a	3.75aq	4.65a	4.25‡bm	4.25‡bm	4.50‡bm	4.50‡bm	4.50‡bm	.....	.....	.324a	.45as	14.70‡
Toronto	5.20s	3.84r	5.20s	2.40	2.40	2.05	2.40	2.40	2.40	2.40	.26	.265as	13.75q

‡ Delivered. * Prices incl. dealers discount except as noted. # Add 4% sales tax ## Add 2% intrastate sales tax. R Revised. † Plus 9% Mun & Prov tax.

CEMENT: [a] Less 10¢ disc. 15 days. [b] Less 2% disc. 15 days. [c] Less 10¢ disc. 10 days. [d] 10¢ disc. 20 days. [e] Truckload lots. [f] Fob mill, add $14.58 to $21.31 per car switching charges. [g] fob mill + freight. [h] LCL. [i] Less 2% disc. 10 days. [j] Truck lots, fob yard. [k] 100 bag lots [l] over 150 sacks. [m] Sold in bags only. [n] Less 5% disc. 30 days. [o] Plus 50¢ for Sat. del. [p] 5-8 ton truckload. [q] F.o.b. m III [s] In bags & bbl. Only [t] min. 7 tons

SAND, GRAVEL, STONE & SLAG: [a] Truck lots. [b] Per cu. yd. [c] 5 tons up. [d] Less 5¢ disc. 10 days. [e] Less 2% disc. 10th. [f] Less 2% disc. 15th. [g] Less 5% for cash. [h] Less than 5 tons. [j] F.o.b. quarry. [k] Barge lots add. [l] F.o.b. scow Hudson river. [m] Less 2% for cash. [n] F.o.b. cars. [q] F.o.b. yard. [r] less 5% disc. 15th. [s] Less 2% disc. 10 days. [t] Less 10¢ disc. 10 days. [u] Less 5¢ disc. 10 days. [v] Less 2% disc. 15 days. [w] Less 10¢ disc. 15 days. [x] Incl. 25¢ switch. charge. [y] F.o.b. dock. [z] 5-8 tons. [aa] Less 5% disc. 15 days. [bb] Less 2% 25th of month

CONCRETE BLOCK: [a] Cinder. [b] Waylite. [c] Haydite. [d] Colorado, [e] 8½ x 8 x 12 in. [f] 8 x 4 x 16. [g] F.o.b. truck at job. [h] F.o.b. plant San Rafael. [m] F.o.b. yard. [n] 8 x 8 x 16. [o] Less 2% disc. 10 days. [p] Less 2% disc. 15th. [q] Less 5% disc. 10th. [r] Less 2% disc. 15 days. [s] Less 2% disc. cash. [t] Spurox, 7 x 8 x 16. [u] Less 5% disc. 10 days. [v] Less 12% disc. 15th.

READY MIXED CONCRETE: [a] 6 cu yd or over del. Man. [b] 25 cu yds or more. [c] 10-100 cy. [d] 1-3 mi. zone add 15¢ for ea. add'l 1-mi. zone. [e] 3,000 lb comp. [f] 2,500 lb. comp., less 5% disc. 30 days. [g] Less 25¢ disc. 15 days. [h] Less 50¢ for cash. [i] 9% off for cash. [j] 2% off for cash. [k] Federal tax included. Add 9% mun. & prov. tax. [l] 1:2½:3½ base price. [m] F.o.b. yard. [n] Plus escalator clause. [o] Less 2% disc. 15 days. [p] Less 50¢ disc. 15 days. [q] Less 2% disc. 10 days. Add 50¢ per zone. [r] 2000 wgt. [s] Less 5% disc. 10 days. [t] Incl. 50¢ heating. [u] Less 2% disc. 15th. [v] Sat. del.+50¢. [w] 15-100 cy. [x] Del in zone 25-B. [y] less 25¢. 10 days. [z] less 1% in 30 days. [aa] 6 bag mix

CURRENT MAXIMUM PRICES AT CEMENT MILLS: Subject to 10¢ discount, 15 days. For paper bags add 50¢ per bbl., not refundable *Prices guaranteed through December 31, 1960*

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$3.55	Buffington, Ind	$3.55	Steelton, Minn	$3.60	Muskegon, Mich	$3.60	Toledo, O	$3.45
Clinchfield, Ga	3.55	Independence, Kan	3.35	Leeds, Ala	3.40	Saginaw, Mich	3.60	Milwaukee, Wis	3.50
Kingsport, Tenn	3.55	Hannibal, Mo	3.50	Duluth, Minn	3.45	Wyandotte, Mich	3.60	Green Bay, Wis	3.50
West Des Moines, Iowa	3.60	Northampton, Pa	3.50	Hudson, N. Y	3.50	Buffalo, N. Y	3.55	Ironton, O	3.55
Nazareth, Pa	3.50	Universal, Pa	3.60	Alpena, Mich	3.50	Oswego, N. Y	3.60	Montreal, Can	3.31
Bath, Pa	3.50	Waco, Tex. (+ 10¢ tax)	3.35	Detroit, Mich	3.60	Cleveland, O	3.65	W. Winfield, Pa	3.60
Easley, Pa	3.50	Giant, S. C	3.55	Howes Cave, N. Y	3.50	Alsen, N. Y	3.50	Security, Md	3.60

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT		ASPHALT BINDERS—FLUXES		CUTBACK ASPHALT MC		ROAD OIL	ASPHALT EMULSION RSI	
	Granite Per M lots of 25,000 4x4x8 in.	Brick per M 3x4½x8½ in. carload lots	Wood per sq. yd. 3½ in. 10-lb. treat	Per ton, less than 80 penetration		Per gal., 60-300 penetration		per ton		Per gal.	Per gal.	
				Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	a	a	a	$23.70 PS	$45.00PS	$0.2746PS	$0.2353	$0.1308mS	$0.345mS	$0.125RS	$0.122RS	$0.245
Baltimore	a	a	a	21.00r	.....	.09r	0.15r	.09mR	.18mR	.09R/	.10r	0.19r
Birmingham	.....	88.00r	.....	25.12	25.69O	.1069	0.1093O	.1163w	.1185Ow	.1068O	.1069	0.1093O
Boston	.....	.....	.....	23.00apS	46.00apS	22.00mS	46.00mS	.105mF	.22mF	.14mOR	.180R	.....
Chicago	180.00‡a	95.00‡‡a	3.95/4.00‡a‡	22.00f	32.00f	20.40bv	30.40bv	.10bvH	.18bvH	.08b	.....	.....
Cincinnati	.....	.....	.....	26.00fU	.....	26.00ff	.....	.1165mSU	.....	.109	.1265	.....
Cleveland	.....	89.80‡d	6.30	26.00rA	.....	26.00mA	.....	.1165mAF	.....	.....	.1265tA	.31A
Dallas	a	40/50p	a	26.90	46.35	.1138	.1963	30.50	52.45	.1100	.1133	.1963
Denver	.....	82.00a	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	119.00	.....	31.50R	.....	32.20mR	.....	30.24mIR	.....	27.84	.....	.34
Kansas City	a	a	a	17.00ei	.....	17.00es	.....	.085muJ	.....	.063r	0.10	.....
Los Angeles‡	a	a	a	21.50dmz	.....	21.50dmz	.....	23.00d Kz	.....	23.00dmz	23.90tKz	26.30tKz
Minneapolis	.....	.....	3.73A	23.70r	.....	.105w	.....	.....	.....	0.95	1375bb	.....
Montreal	a	a	a	30.50n	43.60n	.167n	.211n	17.90mnF	22.20mnF	.155n	342n	.27nX
New Orleans	a	a	a	30.00r	.....	30.00rr	.....	.095rw	.....	.085nR	.095tBL	.1905nB
New York	.....	.....	3.70/	20.99mO	42.95mO	20.99mO	42.94mO	9.61uF	19.01uF	.....	9.68u	19.11u
Philadelphia	.....	.....	.....	21U	.....	21U	.....	.065U	.....	.095U	.....	.....
Pittsburgh	80.00k	95.00u	6.35n	31.20uq	.....	31.20uq	.....	140‡‡S	.....	.142S	.1403i	.....
St Louis‡‡	.....	.....	.....	19.74/	21.65	.1825/	.1825	.09f	.09fw	0.165/	.1825O	.30R
San Francisco	.....	70.00	.....	22.50pkdd	41.00pkdd	22.50pkdd	41.00pkdd	22.50qNdd	46.50qNdd	23.25qWdd	23.50qXdd	.2023qXdd
Seattle	.....	.....	.....	24.00u	47.00h	24.00uacc	28.50	25.50 KE	.....	28.75kuT	25.80kuX	49.80kuX
Toronto	.....	139.00/‡	4.50/	38.90	50.01ee	0.2075	0.2773ee	0.222ee	0.2704eee	0.233	0.2122ee	.265Zee

‡ Delivered. # Add 4% sales tax. ## Add 2% intrastate sales tax. R Revised.

PAVING BRICK & BLOCK: [a] Less 2% disc. 10th. [b] 3 x 3½ x 8. [c] 2½ x 8½ x 4. [d] Truckload lots. [e] Not used. [f] 2" interior 6 lb tr. [g] Less $1/Mdisc. 15th. [h] 2" tr, 6 lb. [j] 3 x 3½ x 8½. [k] 2½" 6 lb. tr. [k] Used. [l] Redshale. [m] Pine; oak $6.57. [n] Truck del. [o] Less $1/M disc. 15 days. [p] Used: $40; new: $80.

ASPHALTS: [a] F.o.b. refinery, Everett, Mass. [b] F.o.b. refinery, Lockport, Ill. [c] F.o.b. Sugar Creek, Mo. [d] F.o.b. refinery, El Segundo. [e] F.o.b. Baton Rouge. [f] F.o.b. Hartford, Ill. [g] F.o.b. refinery, Richmond, Calif. [h] F.o.b. Martinez. [j] F.o.b. refinery, Baltimore. [k] F.o.b. refinery, Inglewood, Calif. [k] 60-110 'penetr. [l] Less than 100 penetr. [m] 40/300 penetr. [n] F.o.b. refinery, Montreal. Fed. tax included; add 6% for mun. & prov. [o] Drums not avail. Shipped in steel bbl. [p] 60/70 penetr. [q] In customer's drums. [r] Shipped in drums, per drum. [s] 180/300 penetr. [u] Per 100 gal. [v] Per ton. [w] Per gal. [x] Also tank trucks [y] F.o.b. Oakland. [z] F.o.b. Edmonds. [A] F.o.b. refinery, Cleveland. [B] F.o.b. Destrehan, La. [E] RC. [F] Also RC. [G] Also MS [H] RC 0-3 incl. [I] MC 4. [J] MC, RC $0.095. [K] MC 3, 4, & 5. [L] MS. [M] MC 1-5, RC 1-5, $0.0918. [N] MC 3. [O] Truck-load. [P] F.o.b. refinery, Atlanta. [Q] F.o.b. Eldorado, Ark. [R] Delivered within 50 mi. [S] Less 2% disc. 10 days, net 30. [T] Less 1% disc. 10 days. [U] F.o.b. refinery. [V] Less 2% disc. 15 days. [W] SC 2. [X] RS 1. [Y] SC 1. [Z] Incl. 10% Sales Tax. [aa] SC 3, 4, & 5. [bb] RS 3. [cc] In used drums. [dd] ess disc of $1 ton. ee 45 imp. gal. drums [ff] 85-150 penetration

See following ENR issues for OTHER PRICES:

- Wood Products, Glass, Explosives, Chemicals: Last, May 19; Next, June 23.
- Clay Products, Lime, Plaster, Paint, Roofing: Last, May 26; Next, June 30.
- Wage Rates, Building Board Insulation: Last June 2; Next, June 30.
- Iron & Steel Products, Pipe: Last, May 12; Next, June 16.

Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, MARIE MORAVSIK, ELAINE CHOMYAK, ELIZABETH WERRA, ELEANOR QUERET, Reports, J. H. WEBBER, E. R. HUBER, Statistics.

NEW ENGLAND

BUILDINGS—BA

▲ **Mass., Holden**—SCHOOL—BA 6/17—Wachusett Regional School, Wachusett Regional School addn. $1,000,000. L. W. Briggs Assoc. Inc., 90 Park Ave., Worcester, Mass., archt. CD 7/25/56.

▲ **Mass., Needham**—SCHOOL—BA 7/11—Town, Town Office Bldg., Junior High School, Great Plain and Central Aves., $2,338,000. Plans deposit $100. The Architects Collaborative, 63 Brattle St., Cambridge, archts. CD 5/18.

HEAVY CONSTRUCTION—LB & CA

▲ **Oneglia & Gervasini Inc.**, Casson Ave., Torrington, Conn., LB $934,040, (6 bidders), Contract No. 3, lateral sewers, Riverside Ave., PLYMOUTH, CONN. Town of Plymouth Sewer Auth., 130 Main St., Terryville, Conn. Bids May 19. CD 5/4,
Clark & Fray Constr. Co., 631 Lindley St., Bridgeport, Conn., LB $428,364, (4 bidders), Contract No. 2, trunk sewers to Eagle St. (Plymouth, Conn.).

BUILDINGS—LB & CA

▲ **H. P. Cummings Constr. Co.**, High St., Woodsville, N. H., CA $1,988,888, est. $2,100,000, LIBRARY, East Campus, BURLINGTON, VT. University of Vermont, 85 S. Prospect St., Burlington, Vt. Awarded May 23. CD 5/24, under LB.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

▲ **N. Y., Mineola**—BA 6/21—Bd. Suprvs. Nassau Co., Old County Court House, general contract sewage treatment plant and lift station, Inwood. $1,507,904. Plans deposit $50. LB $1,489,094. CD 5/19, under LB.

HEAVY CONSTRUCTION—LB & CA

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburgh,
Pa.—**John F. Casey Co.**, P. O. Box 1888, Pittsburgh, Pa., CA $9,240,364, 19,035 ft. separated hy. rein.-conc. variable in width, 12 bridges, T.R. 8-28, Etna-Sharpsburg By-pass, Etna, Sharpsburg and Aspinwall Boros, Shaler and O'Hara Twps., Allegheny Co. Bids Mar. 24. Awarded May 24.
Pa.—**C. J. Langenfelder & Son**, 8427 Pulaski Hy., P. O. Box 5106, Baltimore, Md., CA $4,600,628, 27,990 ft. divided hy. rein.-conc. 24 ft. wide each side 60 ft. earth divisor, 8 pairs alt. bridges, sec. of Cumberland Valley Freeway, Carlisle Bypass, Dickinson, S. Middleton, N. Middleton and Middlesex Twps., Carlisle Boro, Cumberland Co. CD 5/27, under LB.

BUILDINGS—LB & CA

▲ **McArthur Constr. Corp.**, 101 Park Ave., New York 17, N. Y., CA est. $7,000,000, 19 story office to be called Weaver's Bldg., 104 W. 40th St. and 109 W. 39th St., NEW YORK, N. Y. Syndicate, c/o Joseph F. Bernstein, 400 Park Ave., New York 22, N. Y. Emery Roth & Sons, 400 Park Ave., New York 22, N. Y., archts.

▲ **Cauldwell-Wingate, Alvin Benjamin**, 101 Park Ave., New York 17, N. Y., CA est. $96,000,000, twenty two 20 story COOPERATIVE APARTMENTS, Sheridan and Morris Aves. and E. 150, E. 161 Sts., Bronx Boro, NEW YORK, N. Y. Amalgamated Meat Cutters & Butcher Workmen of North America, 113 W. 42nd St., New York 36, N. Y. Harry M. Prince, 101 Park Ave., New York 17, N. Y., archt. Di Stasio & Van Buren, 136 Liberty St., New York 66, N. Y., engrs.

▲ **Irons & Reynolds, Inc.**, 420 Lexington Ave., New York 17, N. Y., CA est. $2,000,000 ANIMAL HOSPITAL, 511 E. 61 St., NEW YORK, N. Y. New York Women's League for Animals, 350 Lafayette St., New York 12, N. Y. Chapman, Evans & Delehanty, 50 Broadway, New York 4, N. Y., archts. Bids May 9. Awarded May 20. CD 1/30/59.

SOUTH

HEAVY CONSTRUCTION—BA

▲ **N. C., Greenville**—BA 6/24—City, City Hall, sewage treatment plant and outfall lines, $1,150,000. Plans deposit $135. William F. Freeman, Inc., 116 E. Commerce St., High Point, engr. CD 2/16/59.

BUILDINGS—BA

▲ **Ga., Atlanta**—NURSES HOME—BA 6/22—Fulton-DeKalb Hospital Auth., c/o Grady Hospital, 80 Butler St. SE, 5 story, nurses home, $1,000,000. Plans deposit $100. Percy Perkins, 1368 W. Peachtree St., NW, archt. CD 3/28.

▲ **Ky., Lexington**—COURT HOUSE IMPRVS.—BA 6/22—Fayette County Fiscal Court, general contract, elevators and equip., heating, ventilating and air conditioning and electrical work and plumbing courthouse remodeling $1,500,000. CD 9/18/59.

▲† **Tenn., Oak Ridge**—RADIOISOTOPE DEVELOPMENT LABORATORY—BA 6/16—U. S. Atomic Energy Comn., Oak Ridge, radioisotope development laboratory, Proj. 401-60-184. Over $1,000,000. Plans deposit $100. Catalytic Constr. Co., 1528 Walnut St., Phila., Pa., engrs. CD 5/12.

▲ **Ky., Louisville**—MEDICAL, DENTAL RESEARCH—BA 6/28—University of Louisville, Belknap Campus, Zone 8, 7 story, 50 x 285 ft. rein.-con. brick, glass, concrete block medical, dental research. $2,600,000. Plans deposit $100. Joseph & Joseph, 202 Speed Bldg., Louisville 2, Ky., archts. E. R. Ronald & Assoc., 554 S. 3rd St., Louisville 2, Ky., engrs. CD 7/23.

BUILDINGS—LB & CA

▲ **H. L. Coble Constr. Co.**, 1705 Battleground Ave., Greensboro, N. C., CA TOBACCO RESEARCH addn. and mfg. PLANT addn., GREENSBORO, N. C. P. Lorillard Co., Inc., 200 E. 42nd St., New York, N. Y. Bids May 2. CD 4/26.

▲ **Dickerson Contracting Co.**, Monroe, N. C., CA est. $1,000,000, 75,000 ft. PLANT, Baldock, ALLENDALE, S. C. Allendale Wool Scouring Co. sub. of Fred Whitaker Co., 421 Maywood Ave., Raleigh, N. C. CD 4/14, under LB.

▲ **H. C. Jones Constr. Co., Inc.**, 8th Ave., Myrtle Beach, S. C., CA Est. $1,100,000, MOTOR HOTEL, swimming pool, WINSTON-SALEM, N. C. Transcontinental Inn, c/o Don Kennerly, Liberty Life Bldg., Charlotte, N. C. CD 10/22.

King-Hunter Constr. Co., P.O. Drawer V-2, Greensboro, N. C., LB $404,315, CHURCH addn., WINSTON-SALEM, N. C. Centenary Methodist Church, 646 W. 5th St., Winston-Salem, N. C.

▲ **Howie Constr. Co.**, 720 Bratton St., Jackson, Miss., CA Est. $1,400,000, 10 story APARTMENT, BILOXI, MISS. Gulf Tower, Inc., Biloxi, Miss.

▲ **Rock City Constr. Co.**, 4401 Kentucky Ave., Nashville, Tenn., LB $2,362,560, general contract MUNICIPAL AUDITORIUM, NASHVILLE, TENN. City, City Hall, Nashville, Tenn. Bids May 24. CD 5/2;
Buchi Plumbing Co., 220 Twelfth Ave. N., Nashville, Tenn., LB $1,228,000, plumbing, heating and air-conditioning for Municipal Auditorium (Nashville, Tenn.).

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $53,000; other public works $88,000; Industrial buildings $110,000; other buildings $400,000. Also Foreign projects of $1,000,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
SOON LETS CONTRACT: SLC
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported n low bidder stage.
CD dates shown are of Construction Daily Issue in which last previous report was published.
OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily
For additional reports see Construction Daily.

MIDDLE WEST

HEAVY CONSTRUCTION—LB & CA

▲ **Siesel Constr. Co.**, 514 E. Ogden Ave., Milwaukee, Wis., LB $2,215,000 (8 bidders), Howard Ave. purification plant, MILWAUKEE, WIS. City, City Hall, Milwaukee, Wis. Bids May 26. CD 4/14.

Fattore Co., Inc., Centerline, Mich., LB $2,946,822 (5 bidders), main sewer, S. Pennsylvania Ave., Oak Creek, MILWAUKEE, WIS. Metropolitan Sewerage Comm. of the County of Milwaukee, P.O. Box 2079, Milwaukee, Wis. Bids May 24. CD 5/6.

BUILDINGS—LB & CA

▲ **Sumner Sollitt Co.**, 307 N. Michigan Ave., Chicago 1, Ill., CA $1,335,000, 3 story HOSPITAL south wing, HIGHLAND PARK, ILL. Highland Park Hospital, 718 Glenview Rd., Highland Park, Ill. Bids May 16. CD 4/28. Awarded May 24. CD 4/28.

▲ **J. C. Harris & Sons Inc.**, 5400 Elston Ave., Chicago, Ill., LB $4,000,000, 475,000 sq. ft. CHAIN STORE WAREHOUSE, distribution center, freezer space, Proviso Industrial Park, NORTHLAKE, ILL. The Kroger Co., 1041 Vine St., Cincinnati, O. Bids May 17. CD 5/4.

▲ **Hunt, Huber & Nichols Co.**, 2450 Stibbs Ave., Indianapolis, Ind., CA Est. $5,000,000, THERMOPLASTIC MOLDING FACTORY, INDIANAPOLIS, IND. Western Electric Co., Inc., 2525 Shadeland Ave., Indianapolis, Ind. CD 10/19.

▲ **Camosy Constr. Co.**, 2604 Washington Rd., Kenosha, Wis., CA $1,662,645, general contract, elementary SCHOOLS and orthopedic addn., KENOSHA, WIS. Bd. Educ., 5515 Sheridan Rd., Kenosha, Wis. Bids May 3. CD 3/22.

▲ **Oliver Constr. Co.**, Oconomowoc, Wis., LB $1,227,200 (7 bidders), SCHOOL, NEW BERLIN, WIS. Union High School Dist. No. 5, New Berlin, Wis. Bids May 24. CD 5/3.

▲ **Nelson & Co.**, 1550 Yout St., Racine, Wis., CA $1,635,127, general contract, F. R. Starbuck JUNIOR HIGH-SCHOOL, RACINE, WIS. Bd. Educ., Racine, Wis. Bids May 9. CD 5/17, under LB.

▲ **Edw. Gray Corp.**, 12233 S. Ave. O, Chicago, Ill., CA $1,738,200, general contract, HIGH SCHOOL, SHEBOYGAN, WIS. Bd. Educ., Sheboygan, Wis. Bids May 14. CD 5/23, under LB.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

▲† **Ark., Little Rock**—HANGAR—BA 6/23—U. S. Eng., Gay Bldg., 75,000 sq. ft. hangar, Arkansas Air National Guard, Little Rock Air Force Base, ENG-03-050-60-58, $1,500,000. Plans deposit $10. CD 5/26, under LB.

BUILDINGS—BA

▲ **Tex., Dallas**—CHURCH, etc.—BA 6/21—Highland Park Methodist Church, 3300 Mockingbird Lane, 3 story, 45,000 sq. ft. concrete frame, air-conditioned church-educational. $1,164,066. Plans deposit $50. Mark Lemmon, 201 Thomas Bldg., Dallas, Tex., archts. Zumwalt & Vinther, 501 Mercantile, Dallas Bldg., Dallas, Tex. and Chappel & Brenneke, 4427 Cole Ave., Dallas, Tex., engrs. CD 2/15.

▲ **Mont., Shelby**—HIGH SCHOOL—BA 6/28—Shelby School Dist., 75,000 sq. ft. high school, $1,000,000. Plans deposit $100. Brinkman & Lenon, Archts. & Engrs., Strand Bldg., Kalispell, archts.-engrs. CD 9/30.

BUILDINGS—LB & CA

▲ **O. A. Stocke & Co.**, 115 3rd St. N.E., Rochester, Minn., CA $1,032,000, CONTINUED TREATMENT HOSPITAL No. 3, Rochester State Hospital, ROCHESTER, MINN. State Dpt. of Admin., 19 State Capitol, St. Paul, Minn. Bids May 19. CD 5/25, under LB.

▲ **R. W. Carlstrom Constr. Co.**, Mankato, Minn., CA $1,049,000, CONTINUED TREATMENT HOSPITAL, State Hospital, ST. PETER, MINN. State Bd. of Admin., 19 State Capitol, St. Paul, Minn. Bids May 12. CD 5/17, under LB.

▲ **Dickmann-Pickens-Bond Constr. Co.**, Gazette Bldg., Little Rock, Ark., CA $1,200,000, 187,000 sq. ft. concrete and steel PLANT, masonry office, FORT SMITH, ARK. Ohio Rubber Co. (Eagle-Picher Co.), Picker, Okla. Bids May 24, awarded May 26. CD 5/26, under LB.

▲† **Swartout Co.**, 2405 S. Bristol St., Santa Ana, Calif., CA $6,498,530, 400 units Capehart HOUSING, Offutt Air Force Base No. 3, FORT CROOK, NEB. Procurement Office, Offutt Air Force Base, Neb. CD 1/21.

Crete Building Co., 5313 Louise St., Baytown, Tex., Owner Builds, $421,200, 32 DWELLINGS, BAYTOWN, TEX. CD 5/12.

▲ **M. Mandel, Inc.**, 1004 Plymouth Ave., Minneapolis, Minn., CA $1,259,000, general contract two DORMITORIES, NORTHFIELD, MINN. St. Olaf College, Northfield, Minn. Bids May 2. CD 5/6, under LB.

▲ **Klem-Librach-Klem Co.**, 13 Pricewoods Lane, St. Louis 32, Mo., Owner Builds, $1,000,000, 193 RESIDENCES, Olive St. Rd. west of Dallas Rd., ST. LOUIS COUNTY, MO.

▲ **Lakewood Bldg. Co.**, 4034 Grapevine Rd., Houston, Tex., Owner Builds, $428,600, 10 brick DWELLINGS; $415,000, 8 masonry DWELLINGS, Northboro area, HOUSTON, TEX. CD 5/11;
William Rozelle, 4034 Grapevine Rd., Houston, Tex., CA $427,122, 30 DWELLINGS, Houston, Tex.).

▲ **Scientific Design Co.**, 2 Park Ave., New York, N. Y., CA $9,000,000, design and construct Maleic Anhydride PLANT, 8600 Park Pl., near here, HOUSTON, TEX. **Petro-Tex Chemical Corp.**, La Porte Rd., Houston, Tex., Owners Build, $100,000, Plant area and Auto Center; $72,000, earthwork; $66,200, water sys. for Maleic Anhydride Plant (Houston, Tex.).

FAR WEST

HEAVY CONSTRUCTION—BA

▲ **Calif., Chula Vista**—BA 6/20—City, 276 Guava St., Chula Vista, Phase 1, Tidelands Development, dredging, hydraulic fill, sewer outfall exten., $1,100,000. Lawrence, Fogg, Florer & Smith, 4769 Spring St., La Mesa, engrs. CD 11/11/59, under Unclassified.

▲ **California**—BA 6/22—State Dpt. Water Resources, 1120 N St., Sacramento, 2,750 ft. long, 24 ft. high and 18 ft. wide Tunnel No. 1, relocation of Western Pacific R.R. around future Oroville Reservoir, Feather River Proj., Butte Co. $3,000,000. CD 5/6.

BUILDINGS—BA

▲† **Calif., Twentynine Palms**—HOUSING—BA 6/21—Dist. P. Wks. Office, 11th Naval Dist., 1220 Pacific Hy., San Diego, Zone 30, 150 units Capehart Housing, Marine Corps Base. IFB 30227/60B. $2,475,000. CD 9/30/59.

Calif., Vallejo—ENGINEERING BLDG.—BA 6/21—State Div. Architecture, 1120 N St., Sacramento, 1 story, 18,785 sq. ft. rein. grouted brick with steel pile fdns. and concrete floors, Engineering Bldg., California Maritime Academy, Morrow Cove. WO 4304GC. $430,000. Plans deposit $25. CD 8/7/59.

HEAVY CONSTRUCTION—LB & CA

▲ **M-B Contracting Co.**, Box 2059, Anchorage, Alaska, CA $1,333,161, grading, surf., lighting for runway extension, Anchorage International Airport, ANCHORAGE, ALASKA. State Comr. P. Wks., Juneau, Alaska. Bids Mar. 31. CD 4/6, under LB.

▲† **Fredrickson & Watson**, 345 Court St., Ventura, Calif., LB $2,605,000, est. $2,471,000 (4 bidders), roads and utilities, Naval Missile Facility, Spec. 27993, POINT MUGU, CALIF. Dist. P. Wks. Office, 11th Naval Dist., 1220 Pacific Hy., San Diego 1, Calif. Bids May 18. Holmes & Narver, Inc., 828 S. Figueroa St., Los Angeles, Zone 17, engrs. CD 4/21.

▲† **Maino Constr. Co.**, 2238 S. Broad St., San Luis Obispo, Calif., LB $1,639,891 (14 bidders), frequency control facilities, meterology bldg., Naval Missile Facility, Spec. 27995, POINT MUGU, CALIF. Dist. P. Wks. Office, 11th Naval Dist., 1220 Pacific Hy., San Diego 1, Calif. Bids May 24. Ralph M. Parsons Co., 617 W. 7 St., Los Angeles, and A. Quincy Jones & Frederick E. Emmons & Assoc., 12247 Santa Monica Blvd., Los Angeles, engrs. CD 4/27.

▲ **W. M. Lyles Co.**, P.O. Box 495, Avenal, Calif., LB $3,097,671 (5 bidders), irrigation distr. sys. incl. 55 mi. underground pipeline, appurtenances, pipeline structures and pumping plants, near here, PORTERVILLE, CALIF. Saucelito Irrigation Dist. Rt. 2, Box 840, Porterville, Calif. Stetson, Strauss & Dresselhaus Inc., 709 Second St., Porterville, engrs. Bids May 19.

▲ **C. V. Wilder Co.**, 1840 State St., Bellingham, Wash., CA $1,086,700, 50,000 ft., 40 in. concrete water supply pipeline from middle ford, Woodsack River, BELLINGHAM, WASH. City, City Hall, Bellingham, Wash. Bids May 18. CD 5/24, under LB.

▲† **R. A. Heintz Constr. Co.**, 211 NE Columbia Blvd., Portland, Ore., LB $1,330,386, est. $1,695,200 (9 bidders), grading, draining, surf. for detour of US Hy. 30 and UP RR shoofly, John Day Dam, CIVENG-45-164-60-46, OREGON. U.S. Eng., City-County Airport, Walla Walla, Wash. Bids May 24. CD 5/4.

▲ **Ratkovich Constr. Co.**, 1634 Brewster Ave., Redwood City, Calif., LB $1,341,525 (6 bidders), fill for runway extension, International Airport, So. San Francisco. Contr. 262, SAN FRANCISCO, CALIF. City and San Francisco County, P. Utilities Comn., City Hall, San Francisco, Calif. Bids May 26. CD 5/9.

BUILDINGS—LB & CA

▲ **Contracting Engineers**, 2310 West Vernon Ave., Los Angeles, Calif., CA $2,000,000, Roseville Square SHOPPING CENTER, ROSEVILLE, CALIF. Jerome C. Draper Jr., Draper Land Co., Russ Bldg., San Francisco, Calif. Robt. B. Liles, 340 Pine St., San Francisco, Calif., archt. CD 3/1.

▲ **M. Morrin & Sons**, P.O. Box 1148, Ogden, Utah, LB $1,285,972 (10 bidders) second phase, ENGINEERING and physical science bldg., Utah State University, LOGAN, UTAH, Utah State Bldg. Bd., 419 State Capitol, Salt Lake City, Utah. Bids Apr. 26. CD 4/5.

▲ **Midstate Constr. Co.**, 347 Clay St., San Francisco, Calif., LB $1,000,017 (5 bidders) 1 story, 23,000 sq. ft. POWER TUBE DEVELOPMENT and MANUFACTURING and 1 story 42,000 sq. ft. Tube and Circuitry Parts, SAN CARLOS, CALIF. Eitel-McCullogh Inc., 301 Industrial Way, San Carlos, Calif. Vincent G. Raney, 233 Post St., San Francisco, Calif., archt. Bids May 25.

▲ **Johnson-Busboom-Raub**, N. 601 Cedar St., Spokane, Wash., LB $1,799,825 (4 bidders), general contract, 2 RESIDENCE HALLS, PULLMAN, WASH., Washington State University, Pullman, Wash. Bids May 25. CD 4/27.

▲ **Patti-McDonald Constr. Co.**, 1916 Eastlake St., Seattle, Wash., LB $1,482,000 (7 bidders), general contract, RECEIVING, TREATMENT and MEDICAL, at Northern State Hospital, SEDRO WOOLLEY, WASH., State Dpt. General Admin., General Admin. Bldg., Olympia, Wash. Bids May 25. CD 4/27.

▲ **Dickman Constr., Inc.**, 1702 Miramonte Ave., Mountain View, Calif., CA $2,263,600, Blackford High SCHOOL No. 4, CAMPBELL, CALIF. Campbell Union High School Dist., 151 N. Winchester Rd., Campbell, Calif. Bids May 5. CD 5/12, under LB.

▲ **Williams & Burrows, Inc.**, 500 Harbor Blvd., Belmont, Calif., CA $3,198,478, 228-unit HOME for Elderly Persons called The Sequoias, near here, PALO ALTO, CALIF. Presbyterian Church Synod of Calif., 228 McAllister, San Francisco, Calif. Bids Apr. 12. CD 4/15, under LB.

CANADA

BUILDINGS—BA

▲ **Ont., Toronto**—SCHOOL—BA 6/20—North York Bd. Educ., 15 Oakburn Crescent, 2 story Senior High School, Weston Rd., $1,000,000. Henry Fliess & James A. Murray, 224 Merton St., acrhts. Richer, Bradstock & Assocs., Ltd., 600 Eglington Ave. E., engrs. CD 5/23 under LB.

BUILDINGS—LB & CA

▲ **Coyne & Ratcliffe Constr. Co. Ltd.**, 1101 Ridgeway St., Coquitlam, B. C., CA $1,009,787, concrete, steel HIGH SCHOOL, Sperling Ave. and Hastings St., North Burnaby, BURNABY, B. C. Burnaby School Bd., 5325 Kincaid St., Burnaby, B. C. Bids Apr. 13, awarded May 18. CD 4/20.

▲ **Burns & Dutton Concrete & Constr. Co., Ltd.**, 5720 4th St. SE, Calgary, Alta., CA $1,209,000, steel, concrete POLICE STATION, CALGARY, ALTA. City, City Hall, Calgary, Alta. Bids May 3. Awarded May 18. CD 5/12.

▲ **Louiseville Constr. Ltee**, 9 N. Royale St., Louiseville, Que. and **Roland Chalifoux Ltee.**, 6275 Papineau Ave., Montreal, Que., CA $1,200,000, 2 story, 4 wing, 44 x 226 ft. HOME FOR AGED, LOUISEVILLE, QUE. Provincial Dpt. Social Welfare, Parliament Bldgs., Quebec City, Que. Awarded May 20. CD 1/25.

▲ **Fernand J. Labrosse Inc.**, 44 Port Royal Ave., Montreal, Que., CA $1,206,550, 1 story, 85 x 1,100 ft. 2nd story 60 x 400 ft., rein.-con. MARKET EXTENSION, conc. fndns., MONTREAL, QUE. La Compagnie du Marche Central Metropolitan Ltee, 424-A Jacques Cartier Sq., Montreal, Que. Bids Jan. 7. CD 1/15.

▲ **L. Deckelbaum & Sons, Regd.**, 4700 Prince of Wales Ave., Montreal, Que., CA est. $1,000,000, 13 story, 64 x 93 ft. brick, stone, rein.-conc. APARTMENT, conc. fndn., St. Luc Rd., MONTREAL, QUE. Les Placements Trudeau c/o contractor. George Shubin, 4326 Sherbrooke St. W., Montreal, Que., archt. Bernard Geller, 5757 Decelles Ave., Montreal, Que., engr.

AMERICANS ABROAD

HEAVY CONSTRUCTION—BA

† **Turkey**—TECHNICAL FACILITIES—BA 6/20—U. S. Eng., Mediterranean Div., Leghorn, Italy, APO 19, New York, N. Y., U.S.A., technical facilities near Ismar.

BUILDINGS—LB & CA

▲† **Reynolds Constr. Co.**, 120 Wall St., New York, N. Y., $2,761,000 HOUSING PROJECT near Adana and Karamursel, TURKEY, U. S. Eng., Mediterranean Div., Leghorn, Italy, APO 19, New York, N. Y., U.S.A.

FOREIGN

HEAVY CONSTRUCTION—BA

Malaya—HABU POWER STATION—BA 11/1—Central Electricity Bd., Federation of Malaya, Kuala Lampur, Malaya, Habu Power Station. Plans deposit $42. Preece, Cardew & Rider, 8, 10 and 12 Queen Anne's Gate, London, S.W. 1, England, engrs. CD 2/3/58.

LATIN AMERICA

BUILDINGS—LB & CA

▲† **Marhnos Constructoria Maya, S.A.T.hiers 95, Mexico** City, Mexico, CA Est. $4,900,000, 5 story EMBASSY OFFICE, MEXICO CITY, MEXICO. U. S. State Dpt., 21 St. and Virginia Ave. N.W., Wash., D. C. Bids May 2. Southwest Architects-Engineers, 203 Perry Brooks Bldg., Austin, Tex. Carlos Contreras and Lenoardo Zeevaert, Mexico City, archt.-engrs. CD 4/11

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PROPOSED PROJECTS

WATER SUPPLY

Tex., El Paso—Sun City Inc., O'Leary Land Co., 100 N. Florence St., waterworks, $200,000. Sun City 21 mi. east of here.

SEWERS, WASTE DISPOSAL

▲ Mo., Ballwin—City, City Hall, voted $650,000 bonds May 17, sewage treatment plant; defeated $1,425,000 bonds May 17, sewer lines and purchase existing Ballwin Sewage Sys. privately owned. Plans to resubmit to voters within six weeks. CD 4/11.

▲ Mo., St. Louis County—Metropolitan St. Louis Sewer Dist., 901 Washington Ave., St. Louis, Zone 1, major trunk sewerage sys. and sewage treatment facilities for Coldwater Creek Watershed, St. Louis County. $5,500,000. Horner & Shifrin, 1221 Locust St., St. Louis 3, Mo. and Alvord, Burdick & Howson, 20 N. Wacker Dr., Chicago, Ill., consult. engrs. CD 2/28/56.

O., Hudson—Village, Village Hall, sewage disposal plant, $254,300; sewers, N. Main St. Sewer Dist., $160,000; sewer lines for villages, $269,500. Willard Schade & Assocs., Chester-12th Bldg., Cleveland Zone 14, consult. engrs. CD 11/9.

Tex., El Paso—Sun City Inc., O'Leary Land Co., 100 N. Florence St., sanitary sewers, Sun City 21 mi. east of here, $300,000; storm sewers, $250,000.

BRIDGES

▲ Tex., El Paso—Sun City Inc., O'Leary Land Co., 100 N. Florence St., overpasses, $750,000; underpasses, $500,000 Sun City 21 mi. east of here.

STREETS AND ROADS

▲ Conn., Groton—Town of Groton, Town Hall, Poquonnock Bridge, hy. imprvs. $1,050,000.

▲ HAWAII—State Hy. Office, 869 Punchbowl St., Honolulu,

Honolulu Co. — Waimea Scenic Dr., 8.75 mi. one-way scenic drive into mountain area of Waimea, incl. lookout points with shelter and picnic area, Waimea, Island of Oahu, $935,000.

Kaena Point Scenic Parkway, 8 mi. scenic hy. around Kaena Point following old railroad bed from Makai Valley to Makuleia, incl. grading, drainage and two-lane pavement Kaena Point, Island of Oahu, $1,197,000. Belt Collins & Assoc., and Harland Bartholomew & Assoc., Hawaiian Life Bldg., Honolulu, Hawaii, archts.-engrs.

▲ PENNSYLVANIA—State Hy. Dpt., 506 North Office Bldg., Harrisburg,

Adams Co.—relocation 17 mi. Rte. 15 between Maryland State Line and Plainview, north of Gettysburg, incl. Gettysburg bypass, $7,500,000. Grof & Myers, 1824 N. 4 St., Harrisburg, consult. engrs. CD 3/17.

Union Co.—reconstr. 4.4 mi. Rte. 15 between West Milton and point north of White Deer (to be constr. in 2 sections, 2.9 mi. and 1.5 mi.), $3,000,000. Michael Baker, Jr., Inc., Rochester, consult. engr. F. S. Poorman, c/o owner, engr.

Tex., El Paso—Sun City Inc., O'Leary Land Co., 100 N. Florence St., El Paso, 150 ft. boulevard at Sun City, 21 mi. east of here, $600,000.

Tex., Stratford—Sherman County Road Dist. No. 3, Stratford, county road imprvs. $500,000.

EARTHWORK, WATERWAYS

▲ Illinois—Egyptian Electric Cooperative Assn., Steelville, dam and power plant, $25,800,000. Burns & McDonnell, 95th and Troost Sts., Kansas City, Mo., consult. engrs.

AIRPORTS

† Ill., Peoria—RUNWAY EXTENSION—U. S. Eng., 536 S. Clark St., Chicago Zone 5, runway extension 835 ft. Illinois National Guard, Greater Peoria Airport, $250,000. Bids about June 15.

Tenn., Sherbyville—AIRPORT IMPRVS.—Tenn. Bureau Aeronautics, Berry Field, Nashville, Tenn., runway, grading, paving, drainage and lighting Shelbyvill Municipal Airport (Bomar Field), $100,000. Howard, Nielsen & Lyne, 318 Union St., Nashville, Tenn., consult. engrs. CD 4/25.

FOREIGN

▲ Germany, Berlin—PLANT—Leiser Handels-Ges., Mittelbuschweg 10, Berlin, plans by Schwebes & Schlosz-berger, Hardenbergstr. 29, Berlin, plant and office. $1,800,000.

PUBLIC BUILDINGS

▲ Calif., Montebello — SCHOOLS — Montebello Unified School Dist., 123 S. Montebello Ave., voted $4,819,000 bonds May 17, schools. CD 11/18/54.

▲ Colo., Aurora—HOSPITAL—Aurora General Hospital

Assocs., c/o Mrs. William Martin, 719 Scraton Court, hospital, E. 6th and E. 13th Aves. and Potomac St. $2,000,000. CD 11/10.

▲ Ill., Crystal Lake—SCHOOL—Community High School Dist. 155, 45 Franklin St., voted bonds May 21, high school, $2,200,000. CD 4/29.

▲ N. J., Camden—CLASSROOM, etc.—Rutgers University, 406 Penn St., Camden, plans by Esbach & Pullinger, 28 W. State St., Trenton, classroom and laboratory, student center, Camden Branch, Rutgers University. $2,350,000. CD 12/14.

▲ N. C., Rutherfordton—SCHOOLS—Rutherford Co. Bd. Educ., Courthouse, bond election June 25, schools, $2,800,000.

▲ Tex., Spring Branch—SCHOOL—Spring Branch Independent School Dist., 9000 Westview St., Houston, plans by C. H. Kiefner, 3501 Buffalo Dr., Houston. junior high school, $1,650,000. Walter P. Moore, 2 Pinedale St., and H. C. Will, 5017 Winnilka St., both Houston, consult. engrs. CD 12/4/59.

▲ Utah, Logan—STUDENT HOUSING, etc.—Utah State Bldg. Bd., Capitol Bldg., Salt Lake City, Zone 14, plans by Arthur Mueller, 3900 Riverdale Rd., Ogden, Utah, married student housing, $690,000; plans by Paul K. Evans, 515 E. 3rd South, Salt Lake City 11, Utah, library, $2,100,000, State University.

▲ Utah, Ogden—FINE ARTS, etc.—State Bldg. Bd., State Capitol, Salt Lake City, Zone 14, plans by Keith W. Wilcox, 410 Kiesel Bldg., Ogden, Utah, fine arts, $1,626,050; plans by Hodgson & Holbrook, 2554 Monroe Blvd., Ogden, Utah, library and classroom, $1,500,570; Weber College, upper Campus.

▲ Colo., Telluride—SKI RESORT—Telluride Ski, 216 W. Colorado Ave., ski resort, $2,000,000.

▲ Conn., New Haven—LABORATORY—Yale University, 119 College St., science laboratory, Pierson-Sage Sq., Whitney Ave. and Edwards St., $3,000,000; chemistry laboratory, Pierson-Sage Sq., Whitney Ave. and Edwards St., $2,500,000. CD 5/12/54.

▲ D. C., Wash.—ART—American University, Massachusetts and Nebraska Ave. N.W., plans by Faulkner, Kingsbury & Stenhouse, 1710 H St., first art bldg. for Center for Creative Arts, $1,750,000. CD 6/9/50.

▲ Fla., Tampa—SHOPPING CENTER—Eastern Shopping Center, Inc., Mall Walk, Yonkers, N. Y., plans by Jackson & Katkin, 990 1st St. N.W., Miami, shopping center, $1,000,000. D. E. Britt & Assocs., 1766 Bay Dr., Miami, consult. engrs.

▲ Ill., Mt. Prospect—SHOPPING CENTER—Randhurst Corp., 222 N. Michigan Ave., Chicago, Zone 1, plans by Victor Gruen Assocs., 222 N. Michigan Ave., Zone 1, shopping center, Rand and Elmhurst Rds., 10,000 car parking area, $20,000,000. CD 7/15.

▲ Ill., Rockford—SHOPPING CENTER—Shopping Center Developers, Loves Park, shopping center, 700 car parking, Alpine Rd. and Harrison Ave., $2,000,000.

▲ Iowa, Council Bluffs—RESIDENCES—Owner, c/o Farnam Real Estate Co., 104 S. 38 Ave., Omaha, 519 residences, 29 Ave. and Hy. 275, $1,400,000.

▲ Mass., Andover—COUNTRY CLUB—Country Club Development Corp. c/o Robert Stone Co., Inc., 89 Main St., Andover, Mass., Indian Ridge Country Club, golf course, swimming pool. $1,200,000. Constr. 1960.

Mass., Chicopee—GARDEN APARTMENTS—Arudim Realty Trust, 65 Dresser Ave., plans by Munson & Mallis, Inc., 6 Frost St., Springfield, Mass., garden apartments, South St. $500,000. Constr. 1960.

▲ Mich., Detroit—OFFICE—Great Lakes Mutual Life Insurance Co., 82 E. Hancock, 4 story brick, glass office, Woodward and Euclid Aves., $1,000,000.

▲ Mich., Wyandotte—HOTEL-MOTEL—Wayne Michigan Bldg. Corp., 4800 Greenway, hotel and motel, Oak and Elm Sts., Detroit River. $1,000,000. Constr. Aug. 1960.

▲ N. J., Lakewood—ARTS AND SCIENCE, etc.—Georgian Court College, Georgian Court, plans by Eggers & Higgins, 100 E. 42 St., New York, N. Y. arts and science, 2 dormitories, auditorium, dining hall and student activities, $4,250,000.

▲ N. Y., New York—OFFICE—250 Broadway Co., 521 Fifth Ave., New York, Zone 17, plans by Richard Roth, 400 Park Ave., New York, Zone 22, office, 239-50 Broadway, $7,000,000. J. Ruderman, 32 Union Sq., New York, Zone 3, structural engr.; H. Oehrig, Star Route, Calicoon, N. Y., mech. engr.; A. J. Kleinberger, 551 5th Ave., New York, Zone 17, electrical engr. CD 1/15.

▲ N. Y., New York—OFFICE—Jack Brause, 280 Madison Ave., New York 16, will not construct 14 story office, 210 E. 59th St. $2,000,000. Project abandoned. CD 1/29.

▲ O., Cleveland—APARTMENT—A. Mintz & Sons Bldg. Co., 4098 Lee Rd., Zone 28, 9 story apartment, 2145 Stearns Rd., $1,500,000. M. H. Golder, 9503 Woodland Ave., Zone 4, consult. engr. CD 9/3.

▲ O., Columbus—CHURCH—First Community Church, 1320 Cambridge Blvd., church, Reed-McCoy Rds., 20 acre site, $3,500,000.

▲ Pa., Elkins Park—APARTMENT—Nason R. Seltzer, Western Savings Fund Bldg., Phila., plans by Sabatino & Fishman, 116 S. 19 St., Phila., 9 story, 177-unit apartment, swimming pool, stores, $1,500,000. Bids in Aug. George A. Innes Assoc., Bethayres, engr.

▲ Pa., Jenkintown—APARTMENT AND OFFICE—Foxcroft Bldg. Corp., Twp. Line and Washington Lane, plans by George S. Ideil, 117 S. 17 St. Phila., apartment and office, Meeting House Rd., $2,000,000. George A. Innes Assoc., Bethayres, engr. CD 2/9.

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Overpass at intersection of Rts. 12 and 77, Sioux City, Iowa. Designer: Iowa State Highway Commission. Contractor: Hobe Engineering Company.

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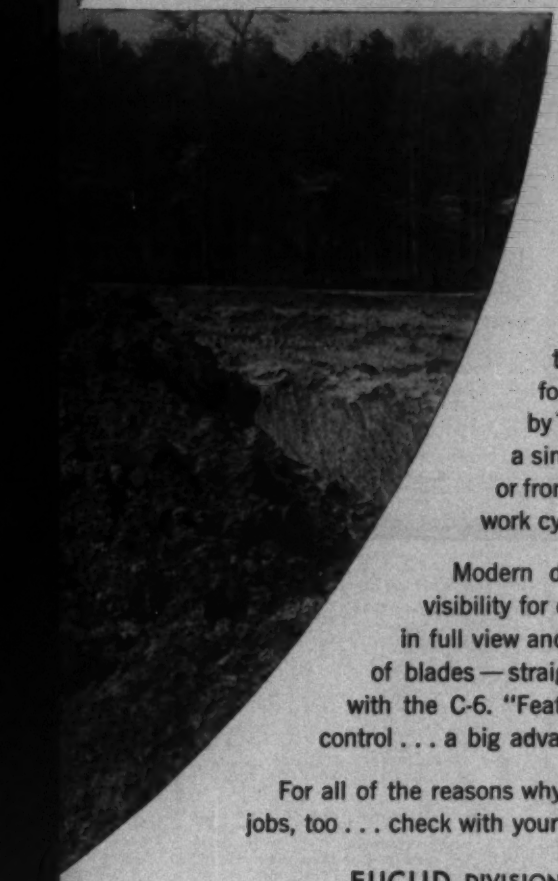
FOR MOVING EARTH, ROCK, COAL AND ORE

..and overall work-ability

put the "EUC" C-6 in a class by itself!



No matter what your dozing requirements may be—from small grading work for land improvement, plant sites or secondary road construction to the big yardage projects—the new Model C-6 Euclid Crawler offers the best return on your equipment investment.

The C-6 has proved its ability to "doze circles" around other tractors in the 200 h.p. class on job after job. One of the reasons for this outstanding performance is the full-power shift provided by Torqmatic Drive. There's no time lost in clutching and shifting... a simple flick of the wrist changes from one speed range to another, or from forward to reverse and back again. You save seconds on every work cycle . . . keep power matched to the load and job conditions.

Modern design, with rear-mounted radiator, gives the operator better visibility for dozing. The blade is close to the front of the tractor where it is in full view and provides good balance and stability. There is a complete line of blades—straight, angle and "U"—engineered for top dozing performance with the C-6. "Feathered steering" results in smooth turning and positive track control . . . a big advantage on difficult slope work.

For all of the reasons why the C-6 has more work-ability on dozing . . . and other crawler jobs, too . . . check with your Euclid dealer for performance facts and figures.

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Plants at Cleveland and Hudson, Ohio and Lanarkshire, Scotland

Good balance with heavy dozer attachments... rear-mounted radiator permits close mounting of straight, angle or "U" blade at front and provides excellent visibility for operator. Quick shift permits "rocking" the tractor to get under big boulders, stumps, etc. Power, speed and fast maneuverability, combined with a rugged undercarriage that stands up under heaviest service, make the C-6 a top performer.

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. . versatile space-savers, efficient cost-cutters that . . .

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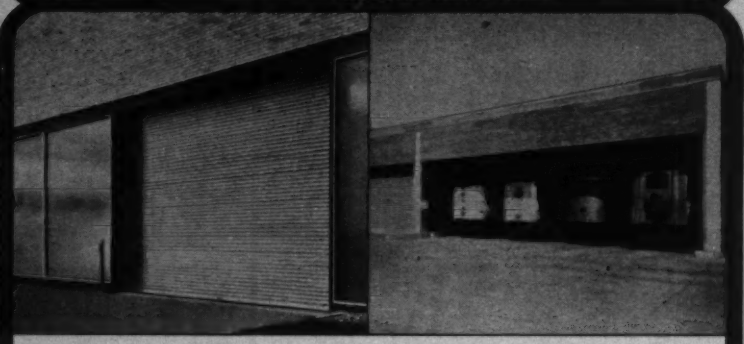
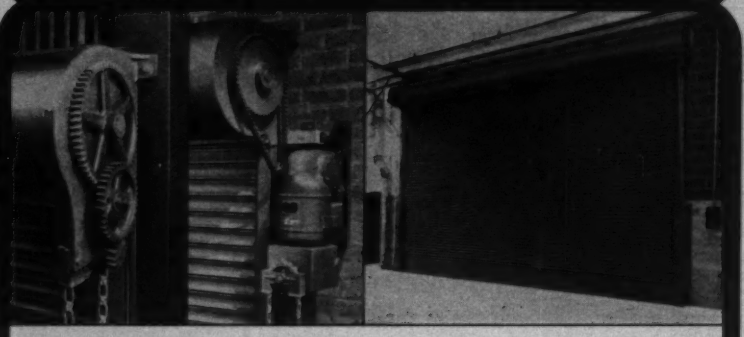


. . suit any surroundings—industrial, commercial or institutional . . .

. . work with a quick vertical roll-up action, and out-of-the-way storage . . .



. . easy operation in either mechanical- or power-operated types . . .

. . in standard or special models, plus Underwriters' labeled types . . .

. . . quality made with Bonderized curtain slats for long life . . .

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Manufacturing Plants—Detroit and Torrance, Calif.
Sales-Engineering Offices in Detroit, New York, Chicago, Torrance and San Francisco.
Representatives in all principal cities.

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▲ **Pa., Lower Paxton Twp.**—SHOPPING CENTER—Woodlawn Farms Corp., c/o Wood Realty Co., 99 N. 17 St., Harrisburg, shopping center, Locust Lane, Colonial Park area, $1,000,000.

▲ **S. C., Columbia**—OFFICE—Bagnal-Craig Co., 919 S. Edisto Ave., Columbia, plans by Lyles-Bissett-Carlisle & Wolff, 1800 Gervais St., Columbia, office, $2,000,000.

▲ **Tex., Amarillo**—APARTMENT, etc.—Park Lawn Inc., 13616 Preston Rd., Dallas, plans by Gideon & Noblitt, 13616 Preston Rd., Dallas, 100-unit apartment, $400,000; 1 story convalescent home, $650,000, W. 27 St. and Paramount.

▲ **Tex., Dallas**—MOTEL, etc.—Del E. Webb Motor Hotel Co., Box 4066, Phoenix, Ariz., plans by Morey & Burns, 1424 Life of America Bldg., Dallas, and Martin Stern, 8352 Wilshire Blvd., Beverly Hills, Calif., assoc. archt., 250-400 room motel, $2,000,000-$4,000,000; 75-unit motel hotel $750,000. Mullen & Powell, 701 Reliance Life Bldg., and Leo Landauer & Assocs., 4801 Lemmon Ave., Dallas, consult. engrs. CD 2/4.

▲ **Tex., Garland**—DWELLINGS—Fox & Jacobs Constr. Co., Inc., 4926 Greenville Ave., Dallas, 36 dwellings, $438,000; 31 dwellings, $419,400; 28 dwellings, $413,750, west of Juniper Rd. and north of Forest Lane.

▲ **Tex., Richardson**—OFFICE—Robert S. Folsom & Sanders S. Campbell, 2623 N. Haskell Ave., Dallas, plans by Fisher & Jarvis, 2623 N. Haskell Ave., Dallas, 5 story, 55,000 sq. ft. faced marble columns, etc. office. $1,100,000. Ling-Altec Electronics, Inc., Richardson, lessee.

▲ **Va., Hampton** — CHURCH — West Hampton Baptist Church, 631 Aberdeen Rd., plans by C. W. Huff, Jr., 105 E. Cary, Richmond, church, classrooms, etc., $1,000,000. CD 5/5.

Wis., Medford—HOSPITAL—Memorial Hospital of Taylor Co., Inc., plans by Bergstedt, Hirsch, Wahlbert & Wold, Inc., 2727 W. 7 Blvd., St. Paul, Minn., 2 story, 34,000 sq. ft., concrete, masony hospital, $800,000. CD 5/20/59.

INDUSTRIAL BUILDINGS

Ala., Maplesville—PLANT—Gulf States Paper Corp., Holt Rd., Tuscaloosa, paper carton mfg. plant, $750,000.

Calif., Beverly Hills—PARKING ADDN.—Beverly Hilton Hotel, 9876 Wilshire, plans by Welton Beckett & Assoc., 5657 Wilshire Blvd., Los Angeles, Calif., 4 story rein.-con. parking addn. $650,000.

▲ **Ill., Peoria**—PLANT—Archer-Daniels-Midland Co., Investors Bldg., Minneapolis, Minn., chemical plant, nitrogen compounds, plasticizers, hydrogen generating station, tank farms, roads, waste basin, $15,000,000. Bids in Summer.

▲ **N. J., Totowa** — PERFUMERY PLANT — Yardley of London, 600 Palisade Ave., Union City, 1 story, 250,000 sq. ft. perfumery plant off Union Blvd. and Riverview Dr., $2,500,000.

▲ **N. Y., Glen Head**—TRANSISTOR PLANT—C. P. Clare Co., 420 Lexington Ave., New York, N. Y. will not construct 1 story transistor plant. $1,000,000. Project abandoned. CD 3/1.

▲ **N. Y., Rochester**—PLANT—Bausch & Lomb Optical Co., 635 St. Paul St., Rochester, 1 story, 250,000 sq. ft. eyeglass frame plant, Town of Chili. $4,000,000.

N. C., Wilson—PLANT—Imperial Tobacco Co. Ltd. of Great Britain, 422 E. Franklin St., Richmond, Va., tobacco redrying plant. Over $500,000. Charles Smith, 422 E. Franklin St., Richmond, Va., consult. engr. CD 5/3.

▲ **Pa., Fort Washington** — PHARMACEUTICAL PLANT, etc.—William H. Rorer, Inc., 4865 Stenton Ave., Phila., office and research bldg., at pharmaceutical plant, Fort Washington Industrial Park, $1,500,000. Day & Zimmerman, Inc., 1700 Sansom St., Phila., engrs.

▲ **Tex., Beaumont**—PLANT, etc.—Goodyear Tire & Rubber Co., 1144 E. Market St., Akron, O., synthetic rubber mfg. plant, Unit 1, $18,000,000; Unit 2, $12,000,000; site earthwork, $150,000; water system, $125,000; plant area paving and auto center, $150,000; storage, $200,000; repair shop, $140,000; storm-sanitary sewers, $150,000. Scientific Design Co. Inc., 2 Park Ave., New York, N. Y., designer.

▲ **Tex., Dallas**—FACTORY, etc.—Dearborn Stove Co., 1700 W. Commerce St., Dallas, plans by Wm. E. Benson & Robert H. Norris, 5738 N. Central Expressway, Dallas, archt.-consult. engrs., 200,000 sq. ft. masonry factory and office, $1,500,000.

▲ **Wis., Middleton**—FACTORY-OFFICE—American Scientific Laboratory, 4001 N. Sherman Ave., Madison, plans by Greilinger & Rose & Assocs., 757 N. Broadway, Milwaukee, Zone 2, 117,000 sq. ft. factory-office, $1,000,000.

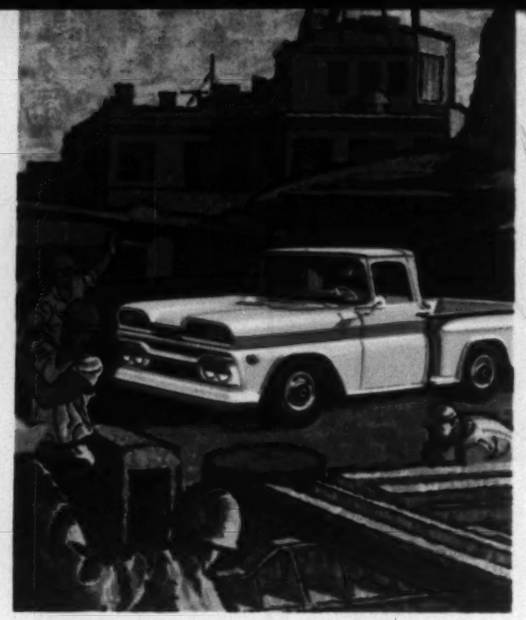
UNCLASSIFIED

▲ **O., Avon**—TRACK—Avon Downs Raceway, Inc., 37399 Detroit Rd., horse racing track, $4,000,000.

▲ **Que., Montreal**—TUNNEL—City, City Hall, reconstr. Wellington St. tunnel, near Sebastopol St. under Canadian National Rly. tracks, $1,500,000.

▲ **Que., Quebec City**—WHARF—National Harbors Bd., West Block, Parliament Bldgs., Ottawa, Ont., 687 ft. long wharf, north side St. Charles River Estuary, $1,600,000.

Now, you can drastically cut your trucking costs thanks to GMC's BIG BREAKTHROUGH in engine, chassis and cab engineering. We urge you to compare GMC's genuine truck value . . . feature for feature . . . dollar for dollar. Check with your nearby GMC Dealer listed in the Yellow Pages for actual proof.

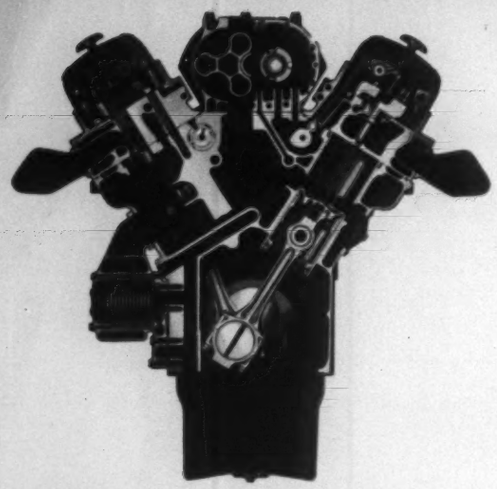


New, distinguished GMC Conventionals are smashing sales records everywhere. And no wonder, look at the extra value and uncompromising ruggedness you get in new GMC pickups. Bigger, stronger cabs. Easier-handling, smoother-riding trucks. Road-tried, test-proved, exclusive V-6 power for lasting, low-cost performance. From 34 combinations, you can get the pickup you actually want and need.

Superior performance, big payloads and low-budget operation are the reasons new GMC Ninety-Inchers are fast becoming contractors' favorites. Power is the exclusive, extended-life V-6 or Twin-Six gas engine, or today's modern diesels—6V-71 Series. A demonstration on your toughest job will be convincing proof.

Join the contractors that are profiting from the many advanced features of the new GMC steel tilt-cabs. BBC is only 72 inches and axle set-back 52 inches – the preferred dimensions to haul more weight, more volume . . . more profitable payloads. You also get superior performance, extremely short turning and big safety vision. Choice of V-6, Twin-Six gas power or V-6 diesels in models from 19,500 lbs. GVW to 76,800 lbs. GCW.

MEN WHO KNOW TRUCK COSTS ARE BUYING GMCs FOR GREATER TON-MILE PROFITS!

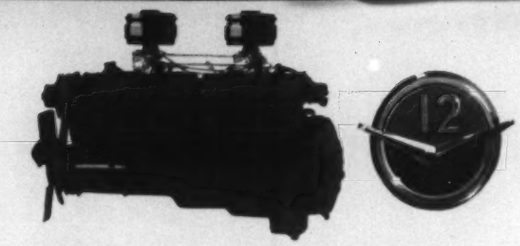


MORE RESPONSIVE, SMOOTHER POWER! NEW GMC V-6 DIESELS

Contractors "working by the clock" praise the instant throttle response and steadier flow of power from GMC's 2-cycle design. You get power on *every* downstroke. There are no wasted strokes or power lags. This work-proved 71 Series gives you more power per cubic inch displacement, more power per pound and more power per dollar!

CHOOSE FROM THESE EFFICIENT, FUEL-SAVING DIESELS		
Model	Max. Torque	Max. Horsepower
6V-71	577 @ 1200	189 @ 1800 210 @ 2100*

*No extra cost

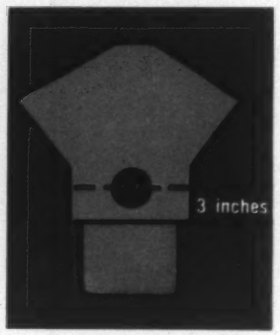


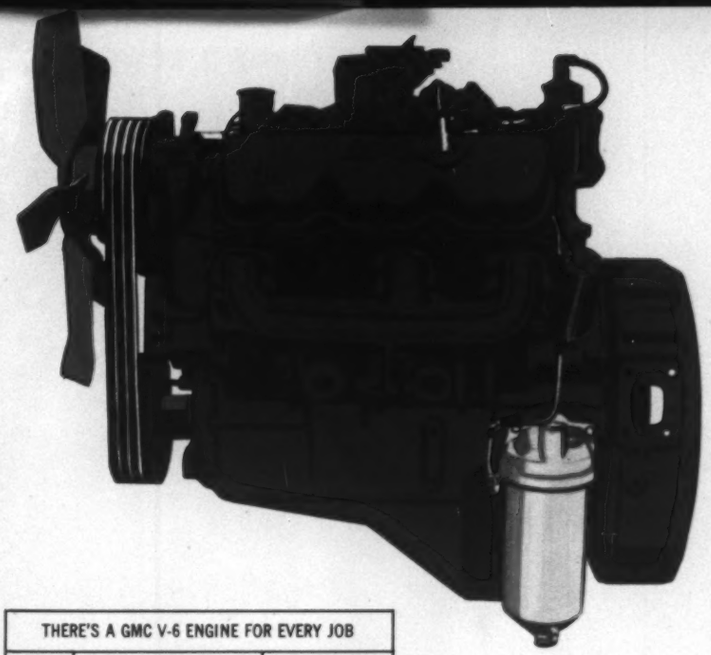
MOST PULLING POWER YOU CAN GET! TWIN-SIX

Exclusive GMC Twin-Six engines are giving truck owners the greatest load-moving power of any standard gas engine. This is lasting power, too. Maximum governed engine speed is only 2400 rpm. Low-stress, easy-stroking speed greatly extends engine life and reduces operating costs.

NEW TWIN-SIX FOR PROFIT-PERFORMANCE ON ALL HEAVY HAULS		
Model	Gross Torque Range	Max. Horsepower
702	625-630 @ 1400-2100	275 @ 2400

Full, rigid crankshaft support! Notice the full 3-inch extended GMC skirt for rigid crankshaft support. New compact design, extra-strong inner ribbing and staggered cylinders all increase strength and rigidity, decrease costly wear and failures.





THERE'S A GMC V-6 ENGINE FOR EVERY JOB		
Model	Gross Torque Range	Max. Horsepower
305A	258-260 @ 1400-2200	150 @ 3600
305B	264-266 @ 1100-2000	150 @ 3600
305C	268-270 @ 1200-2100	165 @ 3800
351	308-312 @ 1400-2400	180 @ 3400
401	375-377 @ 1200-2000	205 @ 3200

New, easy servicing! Comparisons of factory-authorized flat-rate charges indicate that routine maintenance, even major overhauls on the V-6, take less time than on comparable-size competitive engines.

NEW EXTENDED-LIFE V-6 ENGINES, AVAILABLE ONLY IN GMC TRUCKS!

Tough, accurate tests show new GMC V-6 engines—with proper maintenance and application—have a life potential of up to 200,000 miles without a major overhaul.

High output at low rpm gives you the torque to get loads moving and the horsepower to maintain top legal road speeds.

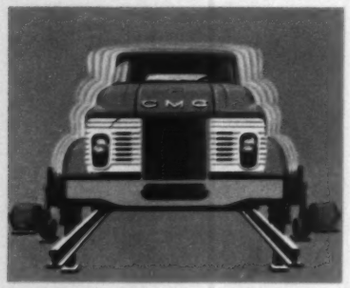
Positive acting, longer lasting valves! Both intake and exhaust valves in the new V-6s are extra large and durable. You get big valve heads; large, short, stiff stems; positive rotators; integral valve guides . . . everything for the best sealing, less wear, freer breathing and cooler operation.

Five brackets solidly hold rocker shaft in exact location. Aluminum material expands to maintain correct valve-lash clearance at all operating temperatures.

Short, rigid push rods are practically deflection-free.

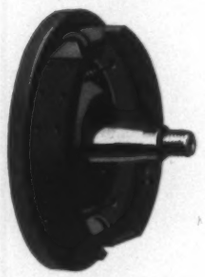
High-mounted camshaft has positive lubrication even at cold starts, to protect lobes and lifters from galling.

FEATURE FOR FEATURE, DOLLAR FOR DOLLAR, NEW GMCs ARE YOUR BEST TRUCK VALUE!

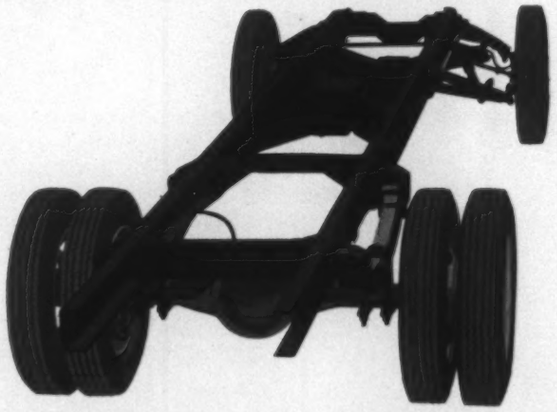


Built really rugged for extra life! Tests prove—double-wall cab construction, new rubber-bushed 3-point mountings, new extra-heavy reinforcements throughout give new GMC cabs amazing long life, make them ride safer, more comfortably.

Shorter turns and easier steering! New, wider track reduces turning circle as much as 15 feet and increases road stability. Improved recirculating ball steering gears cut steering effort.



More safe stops! Bigger lining areas, new Centrifuse brake drums extend brake life, make driving safer with surer stops.



Softer ride . . . simpler handling! New GMCs with independent front suspension reduce wheel shimmy and tramp. Ball joints cut friction for easier steering. New maintenance-free torsion bars have variable rate to absorb shocks and jolts.

Stronger chassis! New design frames are up to 35% stronger . . . extra-tough to take the most severe construction hauling.

Longer spring life! New, standard 3-inch-wide variable rate springs only support weight. Radius rod leaf transmits all torque and braking forces.

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GENERAL MOTORS CORPORATION
TRUCKS

From ½-ton to 60-ton . . .
General Motors leads the way!

GMC Truck & Coach—a General Motors Division—Pontiac, Michigan.

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

▲ **CONNECTICUT**—BA 6/20—State Hy. Comr., 170 Douglas St., Hartford,
Berlin and New Britain—Proj. 07-85, 17,400 lin. ft. bit. conc. pavement, relocating Rte. 72, 7 bridges, 3 rein.-con. box culverts, from intersection Corbin and Farmington Aves. to Rte. 15, FAI Proj. F V 60(4), $4,500,000. Plans deposit $78.35. CD 7/16/56.

BUILDINGS—BA

▲ **R. I., Providence**—SCHOOL—BA 7/5—City, City Hall, Smith Hill elementary school, Danforth St., Camden Ave. and Chad Brown St. $1,000,000. Joseph M. Mosher & Son, Inc., 77 Washington St., Providence, R. I., archt. CD 1/20/59.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

▲ **MARYLAND**—BA 6/21—State Rds. Comn., 300 W. Preston St., Baltimore, Zone 3,
Montgomery Co.—dual 8-span welded steel plate girder and/or prestressed concrete girder bridges, Capitol Beltway over Potomac River, Cabin John, over $3,000,000. Plans deposit $15. A. L. Grubb, c/o owner, br. engr.

BUILDINGS—BA

▲† **D. C., Wash.**—LABORATORY—BA 6/22—Area P. Wks. Office, Chesapeake, U. S. Naval Weapons Plant, high level radiation laboratory, Bldg. 71, Naval Research Laboratory, over $1,000,000. CD 8/6.

▲ **N. J., Middletown**—SCHOOL—BA 6/28—Bd. Educ., intermediate school, Murphy Rd., Harmony, $1,000,000; intermediate school, Middletown-Lincroft Rd., Oak Hill, $1,000,000. Fred Eisasser, 2013 Morris Ave., Union, archt. CD 10/22.

HEAVY CONSTRUCTION—LB & CA

▲† **John Tester & Son**, Clinton, Md., CA **$1,641,438**, airmen's dormitories, John H. Towers Field, ENG-49-080-60-5(5), ANDREWS AIR FORCE BASE, MD. U. S. Eng., First & Douglas Sts. N.W., Wash. 25, D. C. Bids May 19. CD 5/23, under LB.

BUILDINGS—LB & CA

▲ **Caristo Constr. Corp.**, 26 Court St., Brooklyn 1, N. Y., CA **$2,447,728**, 3 story bsmnt., 75,068 sq. ft. brick, steel Bishop Raymond A. Kearney HIGH SCHOOL and 15,809 sq. ft. CONVENT, BROOKLYN, N. Y. Diocese of Brooklyn, 75 Greene Ave., Brooklyn, N. Y. Bids May 13. CD 5/26 under LB.

▲ **Kordite Corp. div. of National Distillers & Chemical Corp.**, Main St., Macedon, N. Y., Owner Builds, **$2,000,000**, 2 story, 40,000 sq. ft. LABORATORIES and OFFICE, MACEDON, N. Y. CD 12/21/59.

▲ **Geo. A. Fuller**, 597 Madison Ave., New York 22, N. Y., CA **$1,380,000** CARDINAL SPELLMAN HALL, Iona College, NEW ROCHELLE, N. Y. Archdiocesan Bldg. Comn., 451 Madison Ave., New York 22, N. Y. Bids May 17. CD 5/9.

▲ **Lawrence J. Rice, Inc.**, 61-40 Maurice Ave., Maspeth, N. Y., LB **$1,548,000** (10 bidders), HOSPITAL addn., PORT JEFFERSON, N. Y. John T. Mather Memorial Hospital, No. County Rd., Port Jefferson, N. Y. Bids May 5. CD 4/8.

▲ **Vincent J. Smith, Inc.**, Syracuse Kemper Bldg., Syracuse, N. Y., LB **$2,753,000**, general contract 300-500 bed COMMUNITY HOSPITAL, SYRACUSE, N. Y. Community Hospital, W. Seneca Turnpike, Syracuse, N. Y. King & King, 420 N. Genesee St., Syracuse, N. Y., archts,
Edward Joy Co., 905 Canal St., Syracuse, N. Y., LB **$516,923**, plumbing for Community Hospital, (Syracuse, N. Y.),
Kenneth A. Taylor, Inc., P. O. Box 186, Eastwood Sta., Syracuse, N. Y., LB **$975,451**, heating and ventilating for Community Hospital (Syracuse, N. Y.),
BEC Elec. Co., P. O. Box 41, Eastwood Sta., Syracuse, N. Y. LB **$655,219**, electrical work for Community Hospital, (Syracuse, N. Y.).

▲ **Arthur Kligman**, 1062 Kilsyth Rd., Elizabeth, N. J., Owner Builds, **$5,000,000**, 310 HOUSES, Rte. 24, HACKETTSTOWN, N. J., Gerber & Pancani, 11 Commerce St., Newark, N. J., archts.

▲ **Walter Kidde Constructors**, 140 Cedar St., New York 6, N. Y., LB **$2,443,000**, (9 bidders), 3 story HOSPITAL ADDN., PLAINFIELD, N. J., Muhlenberg Hospital, Park Ave., Plainfield, N. J., Bids May 26. CD 5/9.

▲† **Sociedade de Emtreitadas e Trabalhos Hidraulicos, Lda**, Lisbon, Portugal and **Healy, Tibbitts Constr. Co.**, 411 Brannan St., San Francisco, Calif., LB **$3,680,021**, waterfront imprvs. incl. rubble mound breakwater, POL pier, fender sys., mooring dolphins POL piping facility, approach road, causeway, POL submarine pipelines exten. and tanker moorings relocation, misc. facilities, Lajes Field, ENG-30-347-60-27, AZORES. U. S. Eng., 346 Broadway, New York 13, N. Y. Bids June 1. CD 3/24.

SOUTH

HEAVY CONSTRUCTION—BA

▲† **Ky., Fort Campbell**—HELIPORT, etc.—BA 6/22—U. S. Eng., P. O. Box 1070, Nashville 2, Tenn., heliport, incl. 3 hangars, operations bldg., storage reservoir, access aprons, parking aprons, vehicular parking, etc. ENG 40-068-60-3. $3,200,000. CD 5/27. under Public Buildings.

▲† **FLORIDA**—BA 6/28—State Rd. Dpt., Tallahassee, **Dade Co.**—grading, 2-lane, 4-lane limerock base, 2, 3, 4 and 8-lane divided limerock base, b. conc. surf. with binder course incl. Type I-B surf. treatment, storm sewers, five 2, 3 and 4 lane bridges, conc. slab deck, steel beams on concrete piers, concrete bents, or structural steel and concrete piers on prestressed concrete piles, aluminum handrail 0.744 mi. State Proj. Job No. 87090-3508, State Rte. 25, LeJeune Rd. Interchanges Miami area, $2,900,000.

BUILDINGS—BA

▲ **Ga., Atlanta**—MOTEL—BA 6/17—Julius Epstein, 231 S. LaSalle St., Chicago, Ill., 150 unit Atlanta Tower Motel, swimming pool, $1,500,000. A. Epstein, 2011 W. Pershing Rd., Chicago, Ill., archt. CD 4/14.

▲† **S. C., Charleston**—HOUSING—BA About 6/21—U. S. Air Force Military Air Transport Service, Scott Air Force Base, Ill., 350 Capehart housing units, Charleston Air Force Base. Inv. 11-626-60-11. $5,600,000. Plans deposit $200. Lyles, Bissett, Carlisle & Wolff, 1800 Gervais St., Columbia, S. C., archts. CD 10/1/59.

▲† **Miss., Biloxi**—HOUSING—BA 6/23—Base Procurement Office, Keesler Air Force Base, Biloxi, 240-units Capehart housing, Keesler Air Force Base, Landry & Matthes, 214 W. Pine St., Hattiesburg, archts. CD 1/12.

Va., Wise—GYMNASIUM-AUDITORIUM—BA 6/29—Dpt. Educ., State of Virginia, c/o University of Virginia, Charlottesville, gymnasium-auditorium, Clinch Valley College, Plans deposit $40. Charles B. McElroy, archt. CD 1/21.

Va., Richmond—CLUBHOUSE—BA about 6/27—Boys Club of Richmond, 420 N. Robinson St., clubhouse, $450,000. CD 11/6.

Va., Chesterfield—SCHOOL ADDNS.—BA 6/27—Chesterfield Co. School Bd., Hickory Hill, Union Grove and G. H. Reid School addns. Plans deposit $10. CD 4/26.

† **Ky., Fort Knox**—TRAIN FIRE I RANGES—BA 6/28—U. S. Eng., P. O. Box 59, Louisville, Zone 1, train fire I ranges, 2 sites incl. 17 concrete lined foxholes, wooden control tower, wooden bleachers, clearing, ENG 15-029-60-52. $150,000. Plans deposit $10. CD 9/25/59.

▲ **Va., Quantico**—HOUSING—BA 7/13—Area P. Wks., Chesapeake, U. S. Naval Weapons Plant, Wash., D. C., 450-units Capehart housing, Marine Corps Schools. Extended date. Nathan C. Hale, Assoc., 916 E. Broad St., Falls Church, archts. CD 5/16.

HEAVY CONSTRUCTION—LB & CA

▲† **McWilliams Industries**, 3308 Tulane Ave., New Orleans, La., LB **$1,217,880**, (3 bidders), dredging outflow-inflow channel, Old River control structure operable, Vidalia, Concordia Parish. CIVENG-16-047-60-184, LOUISIANA. U. S. Eng., foot of Prytania St., New Orleans, La. Bids May 24. CD 4/28.

BUILDINGS—LB & CA

Silas S. Kea & Son, Ivor, Va., LB **$510,000**, HOSPITAL, EMPORIA, VA., Greensville Memorial Hospital, Emporia, Va., Bids May 3. CD 4/14.

▲ **Davis Distributing Co.**, 3426 W. Cary St., Richmond, Va., Owner Builds, **$1,000,000**, STORES AND OFFICES, Belt Blvd., RICHMOND, VA. CD 3/30.

▲ **J. M. Turner & Co. Inc.**, Electric Rd., Salem, Va., LB **$2,495,745**, (15 bidders), rehabilitating CENTER, ROANOKE, VA., Roanoke Memorial Hospital, Bellevue Ave., Roanoke, Va., Bids May 25. CD 3/25.

▲ **McDevitt & Street Co.**, 145 Shuman Ave., Charlotte, N. C., CA **$1,024,400**, ACADEMIC BLDG., LAURINBURG, N. C. Consolidate Presbyterian College Fund, Inc., Laurinburg, N. C. CD 4/27.

▲ **Henry Yaschick**, 19 Broad St., Charleston, S. C., Day Labor, **$2,500,000**, 275 RESIDENCES, CHARLESTON, S. C.

▲ **Plantation Homes, Inc.**, 1311 Highway 61, Charleston, S. C., CA est. **$2,000,000**, 140 RESIDENCES, Sandlewood Subdivision, CHARLESTON, S. C. W. C. Griffith Realty Co., P. O. Box 3184, Charleston, S. C.

▲ **Mark K. Wilson Co.**, 1478 Market St., Chattanooga, Tenn., LB **$1,465,970**, 8 story, 110-room Read House MOTOR HOTEL addn., CHATTANOOGA, TENN. The Read House, W. 9th St., Chattanooga, Tenn. Windrom, Haglund & Venable, Hotel Chisca, Memphis, Tenn., archts. Campbell & Jones, Inc., 1478 Market St., Chattanooga, Tenn., engrs. CD 10/27/59.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲ **Ill., Chicago**—BA 6/16—Metropolitan Sanitary Dist. of Chicago, 100 E. Erie St., Div. YYd, sanitary sewerage, electric work for WSW Treatment Plant, Wet Air Oxydization unit, Stickney, $1,000,000; Contract 60-7, sanitary sewerage, recond. generating and sludge dry units, WSW Sewage Treatment Wks., Stickney. $300,000. CD 1/14.

▲ **Ill., Chicago**—LIGHTING—BA 6/17—Dpt. Purchases, City Hall, Zone 2, No. 80.64-60-2, street lighting extensions, imprvts., Dpt. of Streets and Sanitation. $1,500,000. CD 11/10.

† **Michigan and Ontario**—BA 6/17—U. S. Eng., 1101 Washington Blvd., Detroit, Mich., dredging lower Livingston Channel, Detroit River, CIVENG-20-604-60-80. Plans deposit $1.30.

BUILDINGS—BA

▲ **O., Dayton**—LIBRARY—BA 7/6—Trustees, Dayton and Montgomery Library Comn., City Hall, library, Cooper Park, $2,250,000. Freeman A. Pretzinger, Reibold Bldg., archt. CD 11/11.

O., Youngstown—SCHOOL—BA 6/17—Bd. Educ., 20 W. Wood St., Roosevelt School addn., Jackson and Rigby Sts., $591,000. Plans deposit $25. Damon, Worley, Samuels & Assocs., 215 Lincoln Ave., archts. CD 10/15.

O., Oxford—RESIDENTIAL UNITS—BA 6/22—State Dpt. P. Wks., Columbus, Zone 15, 2 residential units, Miami University. Plans deposit $10. Carl E. Bentz, state consult., archt. CD 6/11/56.

O., Columbus—LABORATORY—BA 6/24—State Dpt. P. Wks., Columbus, Zone 15, remodeling Robinson Laboratory, Ohio State University. Plans deposit $10. CD 8/7/59.

▲ **O., Toledo**—SCHOOL—BA 6/24—Bd. Educ., Adams Twp. School Dist., 1800 Krieger Dr., Zone 3, Junior High School, $1,526,000. Plans deposit $40. Laighlin & Kell, Dominion Bldg., Lima, archts. CD 11/10.

O., Wooster — DORIMTORY—BA 6/24 — College of Wooster, 4 story, masonry womens dormitory, Plans deposit $20. Travis Gower Walsh, 2123 E. 9th St., Cleveland, archt. CD 5/10.

O., Athens—CLASSROOM—BA 6/28—State Dpt. P. Wks., Columbus, Zone 15, remodeling gymnasium into classroom Ohio University. Plans deposit $30. George S. Voinovich, 1922 E. 127 St., Cleveland, Zone 6, archt. CD 8/6/59.

O., Dayton—SCHOOL—BA 6/28—Bd. Educ., Wayne Twp. School Dist., 7517 Taylorsville Rd., 1 story Senior High School addn., 5400 Chambersburg Rd., Wayne Twp. Plans deposit $50. Rial Thomas Parris, Knotty Bldg., archt.-engr. CD 2/5.

O., Columbus—HOUSING—BA 6/30—State Dpt. P. Wks., Columbus, Zone 15, married housing Proj. No. 2, Ohio State University. Plans deposit $15. Richard L. Tully & F. H. Hobbs, 582 Oak St., Columbus, Zone 15, archts. CD 7/16/59.

HEAVY CONSTRUCTION—LB & CA

▲ **Shamrock Engineering**, 865 S. Lake St., Gary, Ind., LB **$1,193,577**, paving, extend Tennessee St., Mason to 15 Aves., GARY, IND. City, City Hall, Gary, Ind. Bids Apr. 12. Awarded about May 16. CD 10/15.

BUILDINGS—LB & CA

▲ **Marvin Helf, Inc.**, 10001 Carnegie Ave., Cleveland 6, O., Own Forces, **$2,500,000**, 167 HOMES, Rte. 43 between Rte. 1 and Ohio Turnpike, STREETSBORO, O. Louis J. Rotman, 31715 Vine St., Wickliffe, O., archt.

▲ **Cherry Hill Estates**, Rte. 303, Streetsboro, O., Owner Builds, **$5,000,000**, 500 HOMES, on 200 acre site north side Rte. 303, 3 mi. east of here, STREETSBORO, O.

▲ **Marvin Helf, Inc.**, 10001 Carnegie Ave. S.E., Cleveland, O., Owner Builds, **$2,500,000**, 167 HOUSING UNITS, Rte. 43, between Rte. 14 and Ohio Turnpike, 85 acre site, Arrowhead Trails, STREETSBORO, O.

▲ **Hagerman Constr. Corp.**, Strauss Bldg., Fort Wayne, Ind., CA Est. **$1,000,000**, West State Plaza SHOPPING CENTER, paved parking, West State Blvd. and St. Mary's Ave., FORT WAYNE, IND. St. Mary's Realty, Inc., 4705 Tacoma, Fort Wayne, Ind. A. M. Strauss & Assocs., Strauss Bldg., Fort Wayne, Ind., archt. CD 4/17/59.

▲ **Great Western Contracting Co.**, 33 N. Wabash Ave., Chicago 2, Ill., CA **$3,000,000**, 6 story, 70,000 sq. ft. brick, concrete block HOSPITAL addn., CHICAGO, ILL. St. Annes Hospital, 4950 W. Thomas St., Chicago, Ill. Naess & Murphy, 224 S. Michigan Ave., Chicago 4, Ill., archts. Awarded May 28.

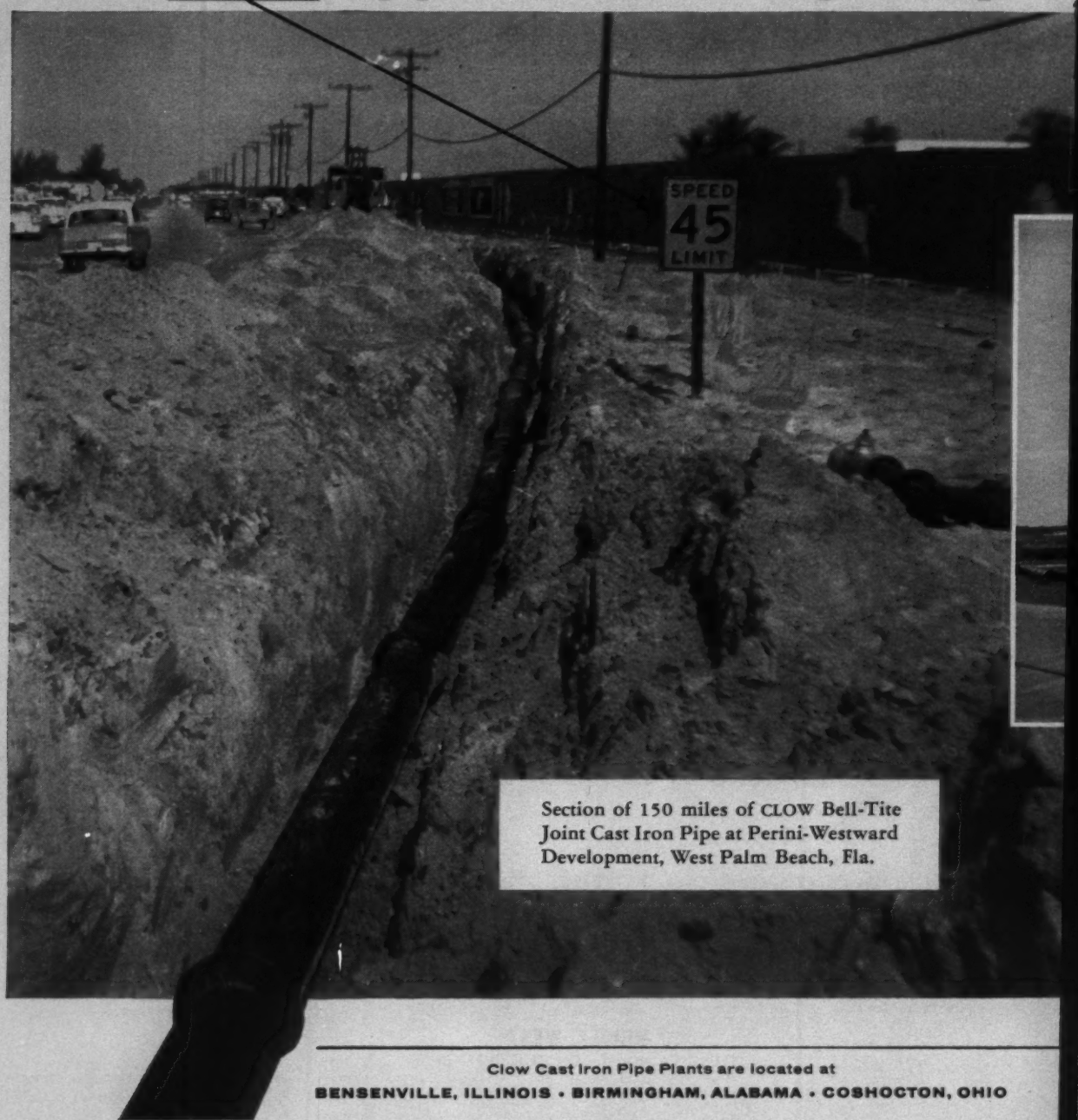
▲ **Perron Constr. Co.**, 6525 Lincoln, Detroit, Mich., LB **$1,322,000** (12 bidders) general contract, Wayne County JAIL addn., Clinton-Beaubien, DETROIT, MICH. Comrs. Wayne County, City-County Bldg., Detroit, Mich. Bids May 24. CD 4/27,
Van Doren Iron Works Co., 21066 Ryan, Warren, Mich., LB **$867,000** (12 bidders) iron work on County Jail addn. (Detroit, Mich.).

▲ **A. J. Etkin Constr. Co.**, 10111 Capitol, Oak Park, Mich., LB **$1,156,000**, Proj. Mich. 27-2, 100-unit HOUSING, Liberty-Henry Ruff Rds., INKSTER, MICH. Inkster Housing Comn., 30005 Pine St., Inkster, Mich. Bids May 25. CD 4/19.

▲† **Beacon Constr. Co.**, 100 Hano St., Boston 34, Mass., CA **$5,377,000**, 330 units Capehart HOUSING, Wurtsmith Air Force Base, OSCODA, MICH. Procurement Office, Wurtsmith Air Force Base, Oscoda, Mich. CD 3/11.

CLOW

This SIGN applies to the highway



Section of 150 miles of CLOW Bell-Tite Joint Cast Iron Pipe at Perini-Westward Development, West Palm Beach, Fla.

Clow Cast Iron Pipe Plants are located at

BENSENVILLE, ILLINOIS • BIRMINGHAM, ALABAMA • COSHOCTON, OHIO

CAST IRON

PIPE

There is no limit to how fast you can lay

CLOW Bell-Tite® JOINT CAST IRON PIPE

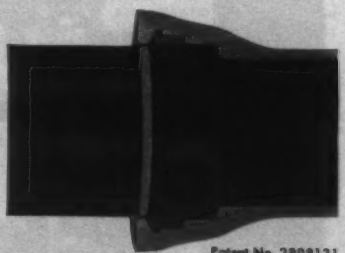
You can install CLOW Bell-Tite Joint Cast Iron Pipe as fast as you can dig a shallow trench. Photo shows the back hoe which clawed open the trench lowering a length of Clow pipe into it.

Over 150 miles of Clow Bell-Tite Joint pipe are the life lines of the water and sewage facilities for this Perini-Westward Development at West Palm Beach, Fla. Time-saving installation plus the economy of material—no accessory but a single molded rubber gasket—are important factors in this $4,000,000 waterworks project installation. One of the owners of this "City within a City" is Louis R. Perini, chairman of the board of the Milwaukee Braves and president of the Perini corporation.

CLOW Bell-Tite Joint Cast Iron Pipe can speed your installations, too. Let us tell you about its many advantages.

Clow Bell-Tite Joint Pipe saves time and money

Assembly is easy and rapid. Just wipe the joint clean, lubricate and push spigot into the bell. When yellow stripe is no longer visible, joint is bottle tight. A single rubber gasket is the only accessory. There are no bolts, no nuts, no followers, no couplings, no extras.



Patent No. 2898131

CLOW CAST IRON PIPE

JAMES B. CLOW & SONS, INC.
201-299 North Talman Avenue, Chicago 80, Illinois

Subsidiaries:

Eddy Valve Company
Waterford, N.Y.

Iowa Valve Company
Oskaloosa, Iowa

On Erie Thruway twin bridges—

USS MAN-TEN High Strength Steel

USS MAN-TEN Brand High Strength Steel was used for the highly stressed members of these two bridges, including many of the upper and lower chords, diagonals, verticals and gusset plates. Bridge owner: Pennsylvania Department of Highways. Designer: Richardson, Gordon & Associates, Pittsburgh. General Contractor: Brayman Construction Co., Pittsburgh. Erector and Fabricator: The Levinson Steel Co., Pittsburgh.

saves weight and cuts costs

The use of high strength steel as a means of saving weight and reducing costs in bridges is rapidly gaining favor. These twin bridges across Six Mile Creek on the Erie Thruway, 15 miles east of Erie, Pennsylvania, were built with 600 tons of USS MAN-TEN Brand High Strength Steel to ASTM specification A-440 and 1,200 tons of ASTM A-7 Steel.

High strength steel was used for heavily stressed members where its higher allowable stress value and weight savings made it more economical. The design stress in bridges for USS MAN-TEN Steel is usually 24,000 psi compared to 18,000 psi for ASTM A-7 Steel. The members shown in color in the diagram were made of USS MAN-TEN High Strength Steel. In addition, many of the gusset plates were MAN-TEN Steel.

Weight savings: USS MAN-TEN (A-440) Steel fully meets all the requirements of the new ASTM specification A-440. When full advantage of its higher yield point—50% greater than structural carbon steel—is utilized, it allows the engineer to design with smaller sections than would be normally used—and thereby realize weight savings up to 25%. A cost savings is also possible, since anywhere USS MAN-TEN Steel accomplishes a weight reduction over 16%, it then becomes the more economical steel to use.

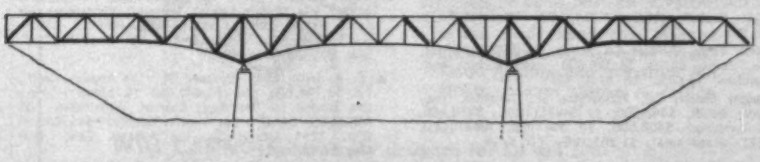
Other USS High Strength Steels available for construction include USS TRI-TEN and USS COR-TEN Steels. Like USS MAN-TEN Steel, these grades have a minimum yield point of 50,000 psi and offer the same weight and a potential cost savings. USS TRI-TEN Steel particularly is recommended for welded structures, while USS COR-TEN Steel, because of its outstanding resistance to atmospheric corrosion and superior paint adherence qualities, is a "natural" for bolted or riveted structures where maintenance is a problem.

Where an extra high yield strength steel is needed, USS "T-1" Constructional Alloy Steel combines weldability and toughness with 100,000 psi minimum yield strength.

For complete information on any of these steels, write United States Steel, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

USS Steels for Bridge Design

Structural Carbon Steel 33,000 psi minimum yield point	**USS MAN-TEN High Strength Steel** 50,000 psi minimum yield point
USS TRI-TEN High Strength Steel 50,000 psi minimum yield point	**USS "T-1" Constructional Alloy Steel** 100,000 psi minimum yield strength



Where high strength steel saved money. Profile of one of the two bridges showing members made of USS MAN-TEN Steel where its high strength/weight ratio made it economical to use.

USS, MAN-TEN, COR-TEN, TRI-TEN and "T-1" are registered trademarks

This mark tells you a product is made of modern Steel

United States Steel Corporation—Pittsburgh
Columbia-Geneva Steel—San Francisco
Tennessee Coal & Iron—Fairfield, Alabama
United States Steel Supply—Steel Service Centers
United States Steel Export Company
United States Steel

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

▲† **Missouri**—BA 7/19—U.S. Eng., Clock Tower Bldg., Rock Island, Ill., Bear Creek Reservoir involving clearing and grubbing, 1,443,630 cu. yd. common excav., etc. Rails and Marion Counties. CIVENG-11-117-60-34. $1,500,000. Plans deposit $100. CD 9/30/59.

BUILDINGS—BA

▲ **Tex., Houston**—OFFICE—BA 6/15—Columbia Gulf Transmission Co., 1125 Brazos St., Houston, 7 story office, $2,000,000. Douglas W. Orr, 111 Whitney Ave., New Haven, Conn. and Geo. and Abel B. Pierce, 2200 Welch St., Houston, assoc. archts. Henry A. Pfisterer, 111 Whitney Ave., New Haven, Conn. and Meyer, Strong & Jones, 230 Park Ave., New York, N. Y., engrs. CD 1/29.

▲ **Tex., San Antonio**—SCHOOL—BA 6/16—Northside Independent School Dist. Bandera Rd., junior high school, $750,000. Marmon & Mok, 905 Natl. Bank Commerce Bldg., San Antonio, archts. Reynolds & Morgan, Insurance Bldg., F. T. Drought, 342 W. Woodlawn Ave., S. E. King, 528 King Wm. St., all San Antonio, engrs. CD 10/22/59.

▲ **Tex., San Antonio**—HOSPITAL ADDN.—BA 6/23—Baptist Memorial Hospital, Baptist General Convention of Texas, 111 Dallas St., San Antonio, 7 story, 175-bed hospital addn. and doctors' offices, $3,400,000. Bartlett Cocke Associates, 3501 Broadway Ave., San Antonio, archts. W. E. Simpson Co., Milam Bldg. and Martin E. Staley, Chandler Bldg., San Antonio, engrs. CD 3/5/59.

▲ **Minn., Moorhead**—SCIENCE and INDUSTRIAL ARTS—BA 6/30—State Dpt. of Admin., Procurement Div., 19 State Capitol, St. Paul, Minn., science and industrial arts, Moorhead State College. $1,575,000. Foss & Co., 28 North 3rd St., Moorhead, Minn. archts.-engrs. CD 10/22/59.

HEAVY CONSTRUCTION—LB & CA

▲ **Thompson Pipe & Steel Co.**, 3001 Larmier St., Denver, Colo., LB $383,056, Conduit No. 28, material only, 10,000 ft. steel pipe; LB $1,217,478, Conduit No. 29, 28,000 ft. steel high pressure pipe, DENVER, COLO. Bd. Water Comrs., 114 W. Colfax St., Denver, Colo.
Lock Joint Concrete Pipe Co., Cooper Bldg., Denver, Colo., LB $734,313, Conduit No. 29, approx. 14,000 ft. low pressure pipe (Denver, Colo.). Bids June 1. CD 5/18.

▲† **A. Kertzman Dredging Co., Midwest Dredging Co.** and **James S. F. Richards Dredging Co.**, 461 Oak Dr., Minneapolis, Minn., LB $2,493,860, jetties at Port Mansfield, Willacy Co., CIVENG-41-243-60-63B, TEXAS. U. S. Eng., Box 1229, Galveston, Tex. Bids May 24. CD 4/22.

▲† **H. B. Zachry Co.**, P.O. Box 10188, San Antonio 21, Tex., and **Brown & Root Inc.**, P.O. Box 3, Houston 1, Tex., CA $20,075,000, Atlas Launch Complexes near Dyess Air Force Base, ABILENE, TEX. U. S. Eng., 100 W. Vickery Blvd., Fort Worth, Tex. Bids May 26. CD 6/1, under LB.

BUILDINGS—LB & CA

▲ **F. J. Kirchhof Constr. Co.**, 700 Lawrence St., Denver, Colo., CA $1,000,000, 2 story paper PLANT expansion, tunnel under alley to connect old and new bldgs., DENVER, COLO. The Denver Post, 15th and California Sts., Denver, Colo. Bids May 17. CD 5/25, under LB.

▲ **Clifton Homes**, 3450 W. 79th St., Westminster, Colo., Separate Contracts, $1,404,000, 78 RESIDENCES, 60th Ave. and Sheridan St., WHEATRIDGE, COLO.

▲ **Westinghouse Elec. Corp.**, 2303 Kennedy St. N.E., Minneapolis, Minn., CA $1,030,000, POWER PLANT imprvt. to incl. 22,000 kw turbine, ROCHESTER, MINN. City, City Hall, Rochester, Minn. Bids May 23. CD 5/10.
Worthington Corp., 807 13th Ave. S., Minneapolis, Minn., CA $146,200, furnish and erect 18,000 sq. ft. condenser and aux. equip. for Power Plant Imprvs. (Rochester, Minn.).

▲ **Robert E. McKee Constr. Co.**, Federal Reserve Bank Bldg., Dallas, Tex., LB $8,508,000 Base, LB $8,798,-400 with alternates (5 bidders), MEDIUM SECURITY PRISON, MOBERLY, MO. Missouri Bd. P. Bldgs., 100 State Capitol, Jefferson City, Mo. Bids May 31. CD 5/3.

▲ **West Texas Utilities Co.**, 1062 N. 3 St., Abilene, Tex., Owner Builds, $1,325,000, steam turbine unit, Stamford, TEXAS. CD 9/30/57.

▲ **Cooper Constr. Co.**, Washington St., Amarillo, Tex., Owner Builds, $442,500, 37 DWELLINGS; $419,600, 93 dwellings; $400,000, 30 dwellings, AMARILLO, TEX. Grand total, $1,262,100. CD 5/19.

FAR WEST

HEAVY CONSTRUCTION—BA

▲ **Calif., Los Angeles**—BA 6/28—Los Angeles Water & Power Dpt., 316 E. 2 St., Encino Dam and reservoir imprvs., $1,500,000.

▲ **CALIFORNIA**—BA 7/6—State Div. Hys., 1120 N St., Sacramento,

Merced Co.—grading, erecting traffic separation bridges and interchange structures on future Rte. US Hy. 99 freeway through City of Merced incl. 15 bridges. $7,400,000. CD 11/13/59.

▲† **California**—BA 7/7—U. S. Eng., 1209 8th St., Sacramento, Middle Creek and Drainage Slough levee Cleak Lake to Bloody Island Pump and upstream project modifications, etc. Lake Co. Spec. 2666, ENG-04-167-60-43. $1,720,000. Plans deposit $10. CD 10/1/59.

† **Oregon**—BA 7/12—U. S. Eng., 628 Pittock Block Portland, Zone 5, design, mfg. deliver, install, test two 13,158 kva generators, appurtenances for Cougar Reservoir, located on South Fork McKenzie River, approx. 5 mi. east of town of Blue River, Lane Co., CIVENG-35-026-60-209. Plans deposit $1. CD 9/28.

▲† **CALIFORNIA**—BA 7/21—Bureau Reclamation, Dpt. Interior, Lewiston, Calif., Whiskeytown Dam near Redding, Shasta Co. Trinity River Division, Central Valley Project. Spec. No. DC-5350. CD 5/4/44.

BUILDINGS—BA

▲ **Calif., Santa Clara**—RESEARCH & ENGINEERING CENTER—BA 6/15—Food Machinery & Chemical Corp., Central Engr. Dpt., 1105 Coleman Ave., San Jose, Calif., Research and Engineering Center, Phase I, 1 and 2 story 50,000 sq. ft. with administration offices, laboratory and machine shop, Coleman Ave. $1,000,000. Anshen & Allen, 461 Bush St., San Francisco, Calif., archts. CD 4/14.

▲ **Wash., Olympia** — OFFICE — BA 6/24—State Dpt. General Admin., General Admin. Bldg., Olympia, two 4 and 7 story, bsmnt., 87x241 ft. each, rein.-conc., air conditioned offices, $6,500,000. Plans deposit $125. Harmon, Pray & Detrich, 2000 5 Ave., Seattle, Zone 1, archts. CD 3/3.

▲ **Calif., Long Beach**—COMPLEX OF BLDGS.—BA 7/6—State Div. Architecture, 1120 N St., Sacramento, 55,422 sq. ft. plus 3,066 sq. ft. of balconies complex of bldgs. for Engineering Unit. Long Beach State College. W.O. 4304GC-41. $1,300,000. Plans deposit $100. CD 8/7/59.

▲ **Ore., Portland**—HOTEL—BA 7/8—Office of Skidmore Owings & Merrill, archts., 2040 SW Jefferson St. (selected list of bidders) 22 story, Portland Hilton Hotel, 4 subterrean levels, landscaped plaza, swimming pool, ballroom, drive-in entrance for Portland Hilton Hotel. $10,000,000. CD 5/22/58.

▲ **Calif., Carmel** — HOSPITAL — BA 7/12 — Peninsula Community Hospital, c/o Edward D. Stone, archt., 350 Waverly St., Palo Alto, Calif., 2 story, 70,000 sq. ft. rein.-con. hospital. $1,850,000. CD 5/25.

HEAVY CONSTRUCTION—LB & CA

▲† **Rogers Constr., Inc.**, and **R. A. Heintz Constr. Co.**, 211 N.E. Columbia Blvd., Portland, Ore., CA $1,330,-386, grading U.S. Hy. 30 and Union Pacific Railroad at John Day Lock and Dam, Rufus, CIVENG 45-164-60-46, OREGON. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids May 24. CD 6/1, under LB.

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento, bids opened 6/1,

Calif.—**State-Hall-Hamilton Co.**, 7805 Southwest 40th St., Portland, Ore., LB $7,469,832, (4 bidders), 5.9 mi. freeway on Hy. 99 with frontage roads, 4 rein. con. bridges and one welded steel girder bridge between 0.6 mi. north of Shotgun Creek and 1 mi. south of Castella. 11-SHA-3-D, Shasta Co.,

Calif.—**Allen M. Campbell Co., General Contractors**, P. O. Box 774, Santa Ana, Calif., LB $4,934,045, (6 bidders), 6.1 mi. freeway, frontage roads, 6 over crossings, 3 bridges and 1 underpass on Bayshore Freeway between 0.3 mi. northwest of Morse Ave. near Sunnyvale and 0.1 mi. southeast of Broakaw Rd. near San Jose. IV-SC1-68, B, SUNV, SC1, SJS, Santa Clara Co. CD 4/27.

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento, bids opened 5/25.

L. C. Smith & Co. and **Concar Ranch & Enterprises, Inc.**, 225 19th Ave., San Mateo, Calif., LB $4,133,017 (7 bidders) grading, paving to constr. 6.3 mi. six lane freeway on Bayshore Freeway between 0.3 mi. north of Charleston Rd. in Mountain View and Fair Oaks Blvd. near Sunnyvale and Freeway and interchange constr. on Sign Rte. 9 (Mountain View-Alviso Rd.) incl. five interchanges, IV-SC1-68-113, A, B, SunV, Mvw. SC1, Sjs, Santa Clara Co. CD 4/13.

▲† **Johnson, Drake & Piper, Inc.**, 10642 South Downey Ave., Downey, Calif., CA $4,114,000 (8 bidders) unitary silo Missile Launch Complex, Vandenberg Air Force Base. ENG 04-353-60-89, LOMPOC, CALIF. U. S. Eng., 751 Figueroa St., Los Angeles, Calif. Bids May 27 CD 5/19.

▲ **E. A. Irish**, 2944 Gleneden St., Los Angeles, Calif., LB $1,748,606 est. $1,000,000 (9 bidders) rein.-con. conduit for Dominguez Channel, Wilmington, LOS ANGELES, CALIF. Los Angeles County Flood Control Dist. 2250 Alcazar St., Los Angeles, Calif. Bids May 27 CD 5/12.

▲ **Lew Jones Constr. Co.**, Gordon H. Ball Inc., & **Ball & Simpson Co.**, 2725 Concord Ave., Concord, Calif., CA $1,295,158, Coleman Market Overpass, SAN JOSE, CALIF. City, Rm. 319, City Hall, San Jose, Calif.

BUILDINGS—LB & CA

▲ **Engstrum & Nourse and Stolte Inc.**, 923 Folsom St., San Francisco, Calif., CA $6,162,500, 8 story, 2 bsmnts., 2 level penthouse, rein.-con. CHEMISTRY BLDG., BERKELEY, CALIF. Bd. of Regents University of California, Admin. Bldg., Berkeley, Calif. Bids Apr. 21. CD 4/28, under LB.

▲ **Taylor Bldg. Co.**, 825 San Antonio Rd., Palo Alto, Calif., CA $1,000,000, MOTEL incl. 1 story commercial bldg., swimming and wading pools, BIJOU, CALIF. Herb Poole, c/o Kenneth P. Elvin & Assoc., archts. 444 Ramona St., Palo Alto, Calif.

▲ **Dike & Colegrove, Inc.**, 419 E. 17th St., Costa Mesa, Calif., CA $1,070,488, 70 frame and stucco DWELLINGS, Iowa St. and various streets, Tract 3648, COSTA MESA, CALIF. New York Ave. Properties, Inc., 419 E. 17th St., Costa Mesa, Calif.

▲ **K. W. Knoll**, 1555 Placentia Ave., Newport Beach, Calif., CA $1,542,705, 93 frame and stucco DWELLINGS, Colorado Pl. and various streets, Tract 3625, COSTA MESA, CALIF. Kenkol Constr. Co., 1555 Placentia Ave., Newport Beach, Calif.

▲ **F. P. Lathrop Constr. Co.**, 800 University St., Berkeley, Calif., CA $3,065,000. first phase, 4 story, bsmnt., 150 bed St. Rose HOSPITAL, Eastshore Hy. and Tennyson Rd., HAYWARD, CALIF. Sisters of St. Joseph, c/o St. Rose Bldg. Fund Inc., 20001 W. Tennyson St., Hayward, Calif. CD 4/21, under LB.

▲ **Whalen Constr. Co.**, 701 Welch Rd., Suite 125, Palo Alto, Calif., CA $2,000,000, 3 story, 60,000 sq. ft. wood and steel frame, stucco ext. OFFICE and Parking Area, Stanford University Professional Administrative Area, PALO ALTO, CALIF. Whelan Realty Co., c/o Contractor. R. R. Zahm, 1299 Bayshore Blvd., Burlingame, Calif., archt.

CANADA

HEAVY CONSTRUCTION—BA

Ont., Port Credit—BA 6/8—Dpt. P. Wks., Hunter Bldg., Ottawa, dredging, $90,000.

Que., Montreal—HARBOR PAVEMENT—BA 6/9—National Harbor Bd., West Block, Parliament Bldgs., Ottawa, Ont., bit. conc. pavement and macad. base wharf area Sections 45, 47, 48 and 49, Montreal Harbor. $90,000. Plans deposit $50.

ONTARIO—BA 6/22—Dpt. Hys., Parliament Bldgs., Downsview,

Ottawa—grading, granular base, hot mix paving, structures Ottawa Queensway, Carling Ave. interchange easterly incl. Merivale Rd. Bridge and Island Park Dr. Bridge, Contract 60-126, $550,000.

Shannonville—grading, granular base, hot mix paving Hy. 401, Shannonville Rd. interchange, Contract 60-117, $150,000.

Ont., Parkhill — BA 6/27 — Ontario Water Resources Comn., East Block, Parliament Bldgs., Toronto, water storage reservoir and water supply mains. Over $60,-000. Canadian-British Engineering Consultants, 1662 Avenue Rd., Toronto, engrs.

BUILDINGS—BA

▲ **Ont., Toronto**—RESEARCH LABORATORY—BA 6/7—Hydro Electric Power Comn. of Ontario, 620 University Ave., Toronto, structural steel for research laboratory, Kipling Ave., Islington, $2,750,000. Plans deposit $25. CD 3/7.

HEAVY CONSTRUCTION—LB & CA

ALBERTA—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont.,
Shaw Constr. Co. Ltd., Midnapore, Alta., LB $528,987 bit. stab. base course from Mile 1 to Mile 18, Banff-Windermere Hy., double seal coat from Mile 0 to Mile 5, Emerald Lake Rd., Contr. 13-60-B-2, Bids May 24. CD 5/20.

NEW BRUNSWICK—Dpt. Hys., Parliament Bldgs., Fredericton,

N. B.—**Forbes & Sloat Ltd.**, 654 Union St., Fredericton, N. B., CA $241,442 (6 bidders) grading, graveling 5 mi. highway between Regent St., Fredericton and Lincoln Crossing, Fredericton,

N. B.—**Dexter Constr. Co., Ltd.**, 880 Dever Rd., Lancaster, N. B., CA $199,777 (6 bidders) grading, graveling 3.3 mi. Trans-Canada Hy. between Anderson Crossing and Petitcodiac, Petitcodiac,

N. B.—**Diamond Constr. (1955) Ltd.**, South Deveon, Fredericton, N. B., CA $264,806 (7 bidders) grading, graveling 4 mi. Trans-Canada Hy. between Aroostock and Grand Falls, Victoria Co., Aroostock, Grand total $706,025.

NEWFOUNDLAND—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont.,
McNamara Constr. (Newfoundland) Ltd., 35 Elizabeth St., St. John's, Newfoundland, LB $965,590, subbase, base course, bit. stab. base course Mile 0 to Mile 10, Trans-Canada Hy., Terra Nova National Park (contract 16-60-TCH-N) St. John's. Bids May 26. CD 5/12.

ONTARIO—Dpt. Hys., Parliament Bldgs., Downsview,
Dibblee Constr. Co. Ltd., 384 Bank St., Ottawa, Ont. LB $358,851 (6 bidders) Contr. 60-26, grading, culverts, gran. base 9.2 mi. Hy. 132, Dacre to Shamrock. Bids May 25. CD 4/14.

ONTARIO—Dpt. of Hys., Downsview,
Dibblee Constr. Co. Ltd., 384 Bank St., Ottawa, Ont. LB $1,234,822 (12 bidders) Contr. 60-141, grading, culverts, gran. base, Trans-Canada Hy. 69, Hayes Corner. Bids May 25. CD 5/18.

Foundation Co. of Ontario Ltd., 1220 Bay St., Toronto, Ont., LB $319,632, three 50 ft. single spans, rein.-conc. decking over steel girders supported by concrete abutments, Black Creek area, TORONTO, ONT. Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. Bids May 26. CD 5/19.

Hurley-Gregoris Constr. Co., Box 84, Weston, Ont., LB $747,083 (8 bidders) 12,500,000 gal. underground reservoir, Eglinton Ave. and Victoria Park Ave., TORONTO, ONT. Municipality of Metropolitan Toronto,

67 Adelaide St. E., Toronto, Ont. Bids May 26. CD 5/13.

Johnson & Hogan Ltd., 27 Courtland Ave., Toronto, Ont. LB $411,295, road extensions, Victoria Park Ave., incl. channelised intersection at Ellesmere Rd. (contract R 23 60) TORONTO, ONT. Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. Bids May 26. CD 5/24,

Warren Bituminous Paving Co., Ltd., Box 119, Downsview, Ont., LB $187,372, paving Lawrence Ave. W. from Keele to Jane Sts., Contract R 22 60 (TORONTO, ONT.). CD 5/19,

Rayner Constr. Co. Ltd., 29 Commercial Rd., Leaside, Ont., LB $179,351, paving Millwood Rd., (Toronto, Ont.). CD 12/9/55.

K. J. Beamish Constr. Co. Ltd., Box 189, Thornhill, Ont. LB $119,120, asph. pavement 40 ft. wide with curbs on Sheppard Ave. W., TORONTO, ONT. Twp. North York, 5000 Yonge St., Toronto, Ont. CD 1/28.

Finley W. McLachlan Ltd., 195 Fairbank Ave., Toronto, Ont., LB $160,392, twin rein.-con. rigid Flemington Park overpass, St. Dennis Dr., Don Valley Parkway, TORONTO, ONT. Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. Bids May 26. CD 5/18.

Marine Industries Ltd., 1405 Peel St., Montreal, Que. LB $2,995,250, (8 bidders), dredging St. Lawrence River channel between Montreal and Cap Tourmente, MONTREAL, QUE. Dpt. Transport Hunter Bldg., Ottawa, Ont. Bids May 25. CD 5/10.

Delangis Inc., 720 Archambault St., Joliette, Que. CA est. $190,000, aqueduct NOTRE DAME DES PRAIRIES, QUE. Piette, Audy & Lepinay, 1134 Chemin St. Louis, Sillery, Que., engrs.

BUILDINGS—LB & CA

Robert McAlpine Ltd., 310 Victoria Ave., Westmount, Que. CA $660,000, (8 bidders), ammonium nitrate chemical plant, SERVICE bldg. and OFFICE, MAITLAND, ONT. Brockville Chemicals, Ltd., Maitland, Ont., subsidiary of Sogemines Ltd., 1980 Sherbrooke St. W., Montreal, Que. Bids May 3. CD 4/18.

Berlin Hotels Ltd., 386 Somerset St. W., Ottawa, Ont. Owner builds, $750,000, 3 story, concrete, brick MOTOR HOTEL, Rideau St., OTTAWA, ONT. George Bemi Assocs., Col. By Towers, Bronson Ave., Ottawa, Ont., archt. CD 2/3/59.

Taylor Woodrow (Canada) Ltd., 42-48 Charles St. E., Toronto, Ont., CA est. $300,000, (24 bidders), substructure RESEARCH LABORATORY, Kipling Ave., Islington, TORONTO, ONT. Hydro-Electric Power Comn. of Ontario, 620 University Ave., Toronto, Ont. CD 3/7.

▲ **Cabot Investments Ltd.**, 340 Lonsdale Rd., Forest Hill, Ont., Owner builds, $1,000,000, two 7 story, glass, brick APARTMENTS, 1759 Victoria Park, TORONTO, ONT. Uno Prii, 220 Eglinton Ave. E., Toronto, Ont., archt. CD 5/10.

▲ **Pigott Constr. Co. Ltd.**, 1250 Bay St., Toronto, Ont. CA est. $2,500,000, (8 bidders), 1 and 2 story, structural steel, rein.-con., brick CRIPPLED CHILDRENS CENTRE, heating extension from Canadian National Institute for the Blind, TORONTO, ONT. Ontario Society for Crippled Children, 95 College St., Toronto, Ont. Bids May 19. CD 4/27.

▲ **Finley W. McLachlan Ltd.**, 195 Fairbank Ave., Toronto, Ont. LB $1,463,994, 60,000 sq. ft. Central Maintenance GARAGE, Lakeshore Blvd. E. for Public Works Dpt., TORONTO, ONT. Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. Bids May 24. CD 4/28.

Safeway Constr. Ltd., 179 Bathurst St., Toronto, Ont. Owner builds, $576,000, 9 story APARTMENT, Spencer Ave., TORONTO, ONT. Mendelow & Keywan, 1398 Eglinton Ave. W., Toronto, Ont., archts.

Wins-low Investments Ltd., c/o Uno Prii, archt., 220 Eglinton Ave. E., Toronto, Ont., Owner builds $400,000, 5, 6 and 7 story APARTMENT, 1765 Victoria Park Ave., TORONTO, ONT.

Wilkinson Constr. Ltd., 3596 St. Clair Ave., E., Toronto, Ont., CA $425,292, steel, masonry, precast concrete Riverdale COLLEGIATE addn., TORONTO, ONT. Bd. Educ., 155 College St., Toronto, Ont. Bids May 3. Awarded May 23. CD 4/13.

AMERICANS ABROAD

HEAVY CONSTRUCTION—LB & CA

▲ **Raymond International (Liberia Ltd.**, Monrovia, (sub. Raymond International Inc.), 140 Cedar St., New York, N. Y., U.S.A., CA Est. $40,000,000, 170 mi. railway from Nimba to Buchanan and harbor works at Buchanan, LIBERIA. Liberian-American-Swedish Minerals Co., Monrovia and Bethlehem Steel Co., Bethlehem, Pa., U.S.A.

▲ **PORTUGAL**—Junta Autonoma de Estradas, Gabinete da Ponte Sobre, Tejo Avenida Duque de Loule 77-5 Esquerdo, Lisbon,

United States Steel Export Corp., 100 Church St., New York, N. Y., U.S.A., Morrison-Knudsen Co., Inc., 319 Broadway, Box 450, Boise, Idaho, U.S.A., Tudor Engineering Co., 595 Mission St., San Francisco, Calif., U.S.A., S.O.R.E.F.A.M.E. Amadora, Portugal and Compadec-Cie pour l'Etude et Development Des Echanges Commerciaux, Paris, France, CA $61,740,000, bridge over Tangus River at Lisbon. D. B. Steinman, 117 Liberty St., New York, N. Y., U.S.A., consult. engr. CD 6/1, under CA.

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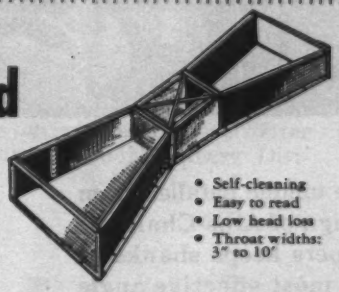

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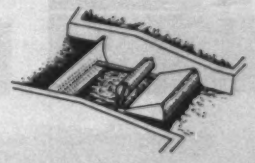

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WELL CASING Scientifically designed for all soil conditions. Made of mild, stainless and alloy steels for long life and low initial cost. Five perforations and four field joints for fast assembly. Write for free literature.

TPO-1A

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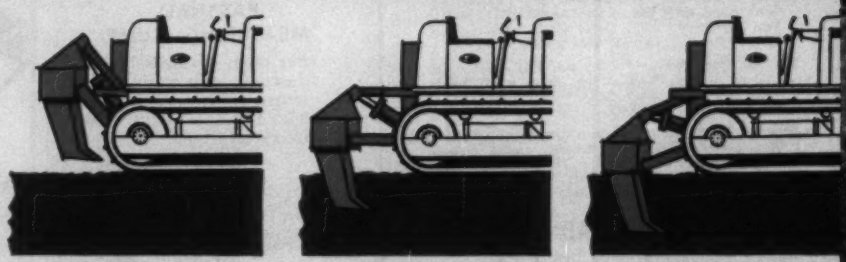
The unique parallelogram design of Allis-Chalmers rippers keeps shanks at the most effective angle . . . up . . . halfway down . . . down full depth.



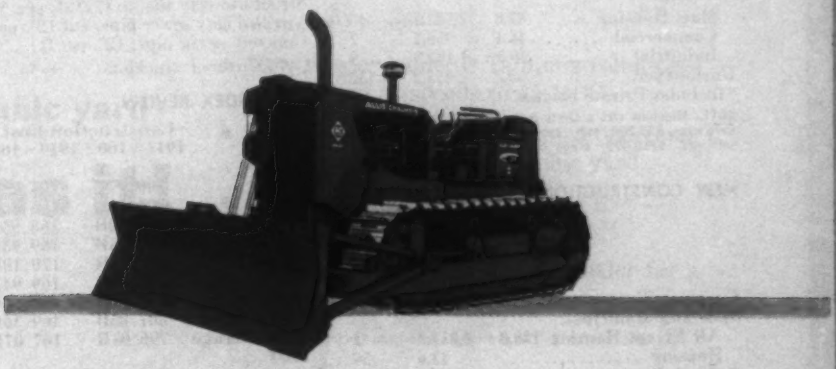
TOUGH TOOLS MATCH TOUGH JOB POWER

Allis-Chalmers rear-mounted rippers maintain most effective penetration angle at all depths . . . up front, specially designed bulldozers make most of HD-21's tremendous power.

Modern tractor power, *plus* modern ripper and dozer design, is making a big difference on today's tough jobs. With the HD-21 and ripper, for instance, up to 60,000 pounds of drawbar pull let you rip 'n' doze what you once shot and shoveled . . . puts one man, one modern machine in place of a typical 4-man blasting operation.

Allis-Chalmers leads the field in making rippers practical and effective for these tough jobs. The introduction of *parallelogram design* — unique Allis-Chalmers feature on these big HD-21 rippers — keeps shanks at most effective penetration angle *at all depths*. You get the *same* effective tooth angle *. . . up . . . halfway down . . . or working a full two feet deep!*

In addition, Allis-Chalmers dozer design utilizes the latest developments in steel to produce durability which makes the most of today's big tractor power without profit-killing maintenance and repair. Trunnions, "C" frames, struts and moldboards match the HD-21's brute strength. If you're bidding or working *any* tough materials, your Allis-Chalmers dealer will furnish all the facts on successful ripper/dozer application. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.



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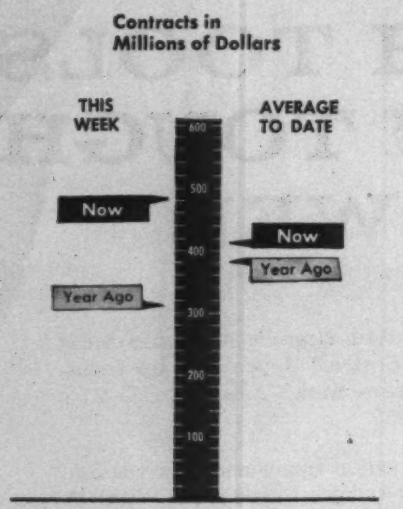
Construction Scoreboard

This Week . . .



AMOUNT OF CONTRACTS LET

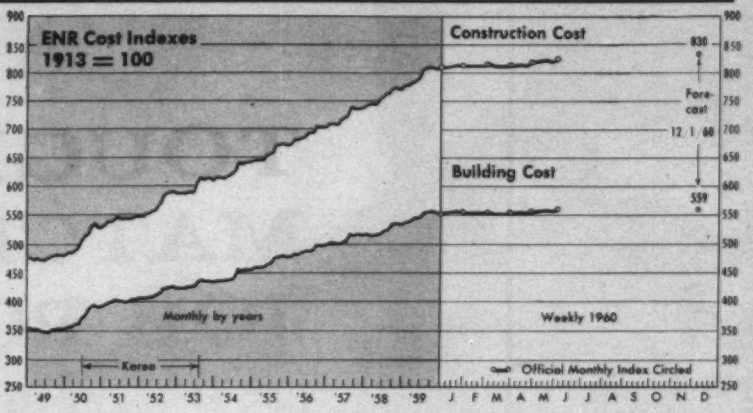
Contracts Awarded In 50 States By Type	This Week millions	Cum. 23 wks 1960	Chge '59-'60 %
All Heavy Construction	$482.0	$9,607.3	+ 9
By Ownership			
PRIVATE	232.2	5,243.1	+21
PUBLIC	249.8	4,364.2	− 4
State & Municipal	187.1	3,355.9	+ 6
Federal	62.7	1,008.3	−27
By Type of Work			
PUBLIC			
Waterworks	12.3	200.5	+ 3
Sewerage	15.1	244.2	−10
Bridges*	13.2	372.8	+45
Highways	80.4	1,391.6	+ 7
Earthworks, Dams & Waterways	10.8	327.7	− 9
Buildings:			
Excl. Housing	52.0	1,017.5	−15
Housing	22.7	229.3	−26
Unclassified	43.2	581.9	−10
PRIVATE			
Buildings:			
Mass Housing	82.8	2,727.5	+40
Commercial	46.4	956.2	− 2
Industrial	49.3	1,102.9	− 9
Unclassified	53.8	455.2	+152

*Includes Private bridges

NOTE: Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

NEW CONSTRUCTION CAPITAL

	Week of June 2 millions	Cum. 22 wks 1960	Chge '59-'60 %
Corporate Securities	$ 31.8	$1,133.0	−35
State and Municipal:			
All Except Housing	120.8	2,811.3	− 2
Housing	....	13.6	−56
Federal Loans	3.0	69.5	+11
Federal Aid	....	2,717.8	....
Total Nonfederal	$155.6	$6,745.2	+44
Federal Appropriations:			
Projects in U. S.	23.5	30.3	....
Outside U. S.	....	168.1	....
Total New Capital	$179.1	$6,943.6	+48



ENR INDEXES (1913=100), 20-cities' average	Week of June 2 1960	% Change from April 28 1960	% Change from May 28 1959
Construction Cost	826.24*	+0.7	+3.9
Building Cost	559.93*	+0.4	+2.1

* Official Monthly Index for June, 1960

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.

This Month . . .

WAGE RATES, 20-cities' average

	June 1960	% Change from May 1960	% Change from June 1959
Common	$2.706	+1.5	+6.2
Skilled (average 3 trades)	4.02	+1.1	+4.5
Bricklayers	4.247	+1.1	+4.0
Structural Ironworkers	4.03	+0.7	+3.9
Carpenters	3.777	+1.4	+3.8
Equipment operators (average three types)	3.635	+0.9	+4.4

MATERIAL PRICES, 20-cities' average

Structural Steel (average 3 mills), per cwt	5.50	0	0
Lumber, 2x4 Fir, per M fbm	120.32	−0.7	−2.5
Lumber, 2x4 Pine, per M fbm	111.13	−0.6	+1.2
Cement, bulk, per bbl	4.013	0	+1.1
Sand, per ton	2.467	0	−1.0
Ready-mixed concrete, per cu yd	14.30	0	+3.0
Gypsum sheathing, ½″x2′x8′, per Msf*	62.89	−0.5	+0.1
Fiber board sheathing, ½″ sq. ed., per Msf*	73.04	−0.7	+2.5
Mineral wool insulation, 3′ batts, per Msf*	68.58	0	+1.0
Crushed stone, 1½″, per ton, CL	26.66	+0.1	−0.4
Concrete blocks, sand/gravel, 8″x8″x16″, each*	23.70	+2.1	+4.8

Latest Month . . .

	May 1960	April 1960	May 1959
Brick, common per M	40.70	0	+5.6
Lime, hydrated finishing, per ton, CL	39.39	0	+0.7
Structural clay tile, 3x12x12″, per M, 2,000 up*	189.26	0	+3.2
Vitrified clay sewer pipe, std 12″, per ft	1.437	+0.5	+6.8
Concrete sewer pipe, 12″, per ft	1.446	0	+7.7

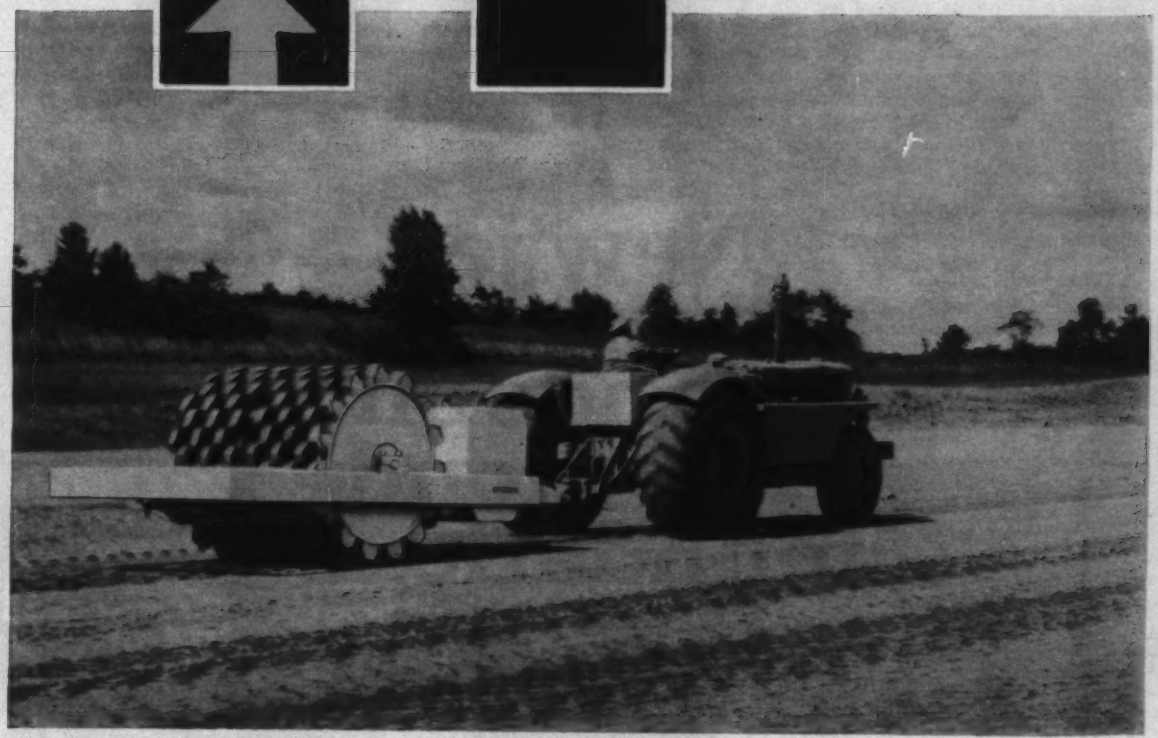
* Delivered trucklots

ENR INDEX REVIEW

	Construction Cost 1913=100	Construction Cost 1949=100	Building Cost 1913=100	Building Cost 1949=100	Volume 1913=100	Volume 1949=100
1959						
May	790.37	165.69	544.44	154.76	700	202
Jun	794.36R	166.53R	548.35	155.87	650	188
July	805.89R	168.95R	551.74	156.84	671	194
Aug	810.35R	169.93R	554.31	157.60	509	147
Sept	811.76R	170.18R	555.88	158.01	545	158
Oct	810.60R	169.94R	555.40	157.88	415	120
Nov	808.98R	169.60R	554.19	157.53	509	147
Dec	807.85R	169.36R	552.30	157.10	436	126
1959 Average	**796.91R**	**167.07R**	**547.82**	**155.72**	**540**	**156**
1960						
Jan	811.84R	170.20R	554.40	157.57	432	125
Feb	812.73R	170.38R	555.43	157.92	486	140
Mar	813.26R	170.49R	555.16	157.81	533	154
Apr	813.38R	170.52R	555.23	157.83	696	201
May	819.98R	171.90R	557.66	158.52	607	175
June	826.24	173.22	559.93	159.16	...	...

R: Revised

HYSTER



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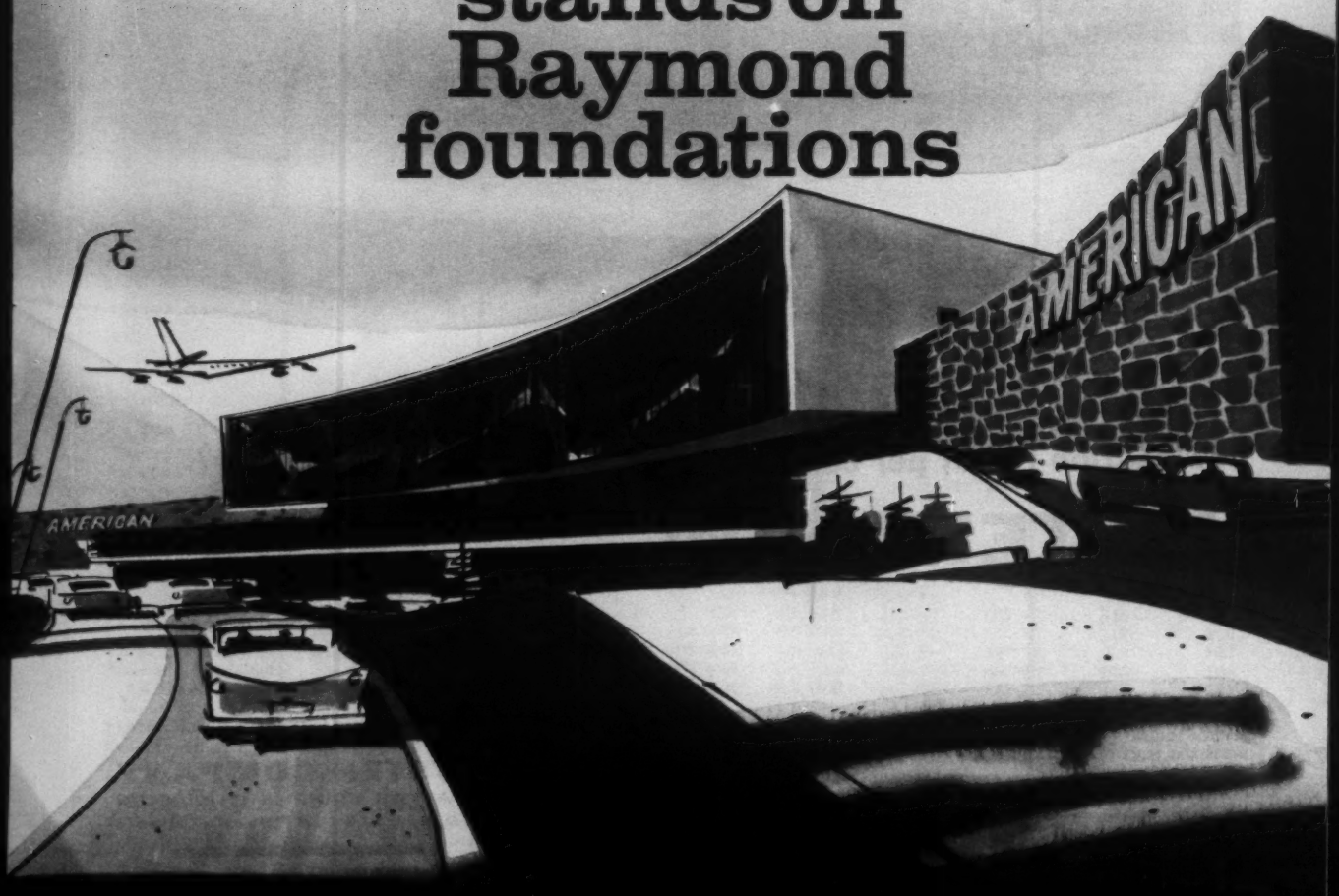

Contractor: Turner Construction Co. Architects: Kahn & Jacobs; Roy S. Bent, Associate Architect. Consulting Engineers: Severud, Elstad-Krueger Associates.

Boston Project Jolted, but Survives

- **Tax-relief legislation for Prudential Center unconstitutional says Massachusetts court.**
- **Approval expected for new legislation that gives project urban redevelopment status.**

Massachusetts' Supreme Judicial Court last week dealt what was expected to be a death blow to Boston's proposed $150-million Prudential Center project. But it seems certain now that lawyers will find a way to keep it alive.

The court ruled that a bill before the legislature that would give Prudential Insurance Co. some relief from Boston's high real estate taxes would be unconstitutional.

Under the original plan, the Massachusetts Turnpike Authority would buy the 31-acre Prudential Center site, build a 2,500-car garage on it, extend its turnpike through the center of the site and then lease air rights over the turnpike and over the garage to Prudential (ENR May 12, p. 111).

The insurance company would then build a 52-story office building, a hotel, apartment houses and a shopping center over the garage and turnpike. The plan called for Prudential to pay rent to the tax-exempt authority, $3 million a year and more when its rents reached a certain level. The authority would then turn the money over to the city as "service payments."

The rental would have been well below what Prudential would have had to pay the city in real estate taxes. Last year Boston's tax was $101.20 per $1,000 of value.

The legality of the proposal under the state constitution depended on whether or not the authority's purchase of the Prudential site would be for a public purpose. The Supreme Court decided that it wasn't, but it suggested that these objections could be overcome by linking the Prudential project with something of patent public purpose, such as slum clearance or urban renewal.

The immediate reaction to the ruling was one of despair. Prudential talked of pulling out, despite $13 million it had spent or committed on the project. Real estate men said Boston was wrecked as a potential site for future business on a large scale. Meanwhile, construction is continuing.

Now everyone is more optimistic about the future of Prudential Center. Wheels are beginning to turn again.

Boston needs Prudential as much as Prudential needs Boston. In progress now is a series of gives and takes among the state, the city, the Massachusetts Turnpike Authority and Prudential to get into position for the right deal to all concerned.

New legislation, drafted by city, state and Prudential officials, appears to cover the Supreme Court objections and Prudential's complaints. It gives the center the status of urban redevelopment and the Turnpike Authority would assume the role of redevelopment authority.

The group announced that there was no question as to the constitutionality of building Prudential Center under terms of urban redevelopment. But Prudential has made it clear it must have legal status for any proposal before it agrees to go much farther.

Prudential says it will continue its foundation work at the center for six or eight weeks under contract agreements, regardless of the outcome of the latest moves. But the company has indicated it will withdraw from the project if no acceptable tax arrangement is worked out within the eight-week period.

Attorney-General Edward J. McCormack, Jr., says there is no plan to ask the court for an opinion on the new bill. One of the interested parties will go to court after it is passed and seek a declaratory judgment on it.

Among the concessions that Prudential agrees to is acceptance of a 40-year tax arrangement, rather than one for a longer period. Also acceptable was a tax based on an amount equal to 20% of the annual gross income.

The new legislation would provide for Prudential Center coming under the redevelopment law for sub-standard, decadent or blighted areas for governmental, commercial, cultural, recreational or industrial uses by urban redevelopment corporations. The new act would add "commercial," which is not in the original act, to include Prudential as a participant.

"Everyone seems to feel that a way can be found, no one seems discouraged, although the battle to get anything like this done in Boston transcends the miraculous," says a Boston businessman. "The history of Prudential Center is similar to that of the under-Boston Common garage, which ran into 15 years of court trials, political maneuvering and civic blockades before it was completed. Prudential has not run that long, but the tactics are similar."

Swiss Cement Plant Opens Here

Ceremonies in Dundee, Mich., last week introduced a new name—Dundee—among U. S. cements, dedicated the largest plant to be built here in a good many years and marked the entrance into the U. S. market of Holderbank Financiere Glaris, a Swiss company that also owns and operates 26 other cement plants throughout the world.

The new Dundee Cement Co. plant, which shipped its first cement three months ago, has a rated annual capacity of 6 million barrels. It will supply concrete in Michigan, Indiana, Illinois and Ohio.

The construction cost of the plant—about $25 million—is considered unusually low. The company also anticipates low operating costs by virtue of its location adjacent to limestone and clay deposits, compact layout of facilities, the use of buffer stockpiles of materials between each production phase and the use of large-size equipment. Cement mills are 12 ft in dia compared with the largest in existence, which are 13 ft. They are operated by 2,500-hp motors, as big as any in use. And the kilns have a diameter of 16½ ft compared with the largest known, 18½ ft.

The Dundee plant was designed and erected under the supervision of the engineering department of the St. Lawrence Cement Co., a Holderbank subsidiary in Clarkson, Ontario. The Nicholson Co., New York, was the construction contractor. Darin & Armstrong, Detroit, installed most of the equipment, except the electrical components, which were installed by Harlan Electric Co., Detroit.

33-50% MORE

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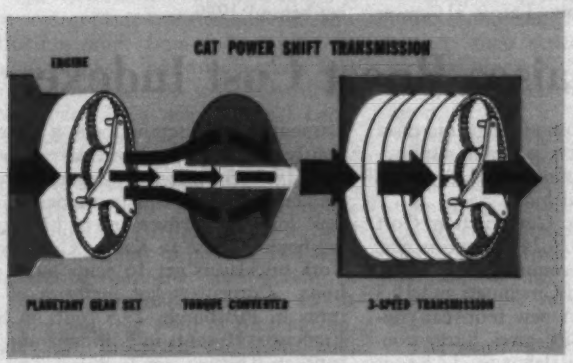

Basic design: Total power is transmitted from the engine to a planetary gear arrangement mounted on the engine flywheel. A torque divider directs the total power—part through a direct drive shaft straight to the transmission and the remainder through a torque converter to the transmission. This enables the Cat power shift transmission to combine the economy and quick response of direct drive with the anti-stall and acceleration against load of torque converter drive. Unit construction makes it easy to service, if required. It's tough—one rugged ton built with the precision of a fine watch.

50% more production! D9E, owned by Carmichael Coal Co. near Calumet, Alabama, removes overburden of shale, sandstone and clay to uncover 30" coal seam. Coal production is 9000 tons a month.

33% more production! Overburden, running to 60', is blasted and then cleared by a D9E. Owner: McCoy Coal Company, Gorgas, Alabama. 1,800,000 yards is moved to mine 150,000 tons of coal per year.

Trading in another large track-type machine for a Caterpillar D9E Tractor has brought *big* production increases to two strip mine operators—increases that prove these power shift machines are quickly paying for themselves on the very tough jobs found in overburden removal.

"We're getting half again as much production with no additional cost," says F. M. Carmichael, part owner of Carmichael Coal Co. near Calumet, Ala. "Power shift cuts operator fatigue and increases the maneuverability of the tractor." That's exactly the reason for designing a Caterpillar transmission with a one-hand control which shifts into all speed ranges, forward or reverse and on-the-go, without braking, and without a master clutch.

Earl McCoy, owner of the McCoy Coal Company, Gorgas, Alabama, has had nearly as good results. "We're getting 33⅓% more production with the D9E over the machine we traded in . . . it's more economical to operate."

The D9E, like all Caterpillar track-type Tractors, has lifetime lubricated track rollers (with the exclusive patented floating ring seals) that never need servicing. Also a dollar-saving dry-type air cleaner that can be serviced in just five minutes, yet filters the air 99.8% clean *even in the worst dust conditions*. And shifting is so easy the operator just naturally gets more work out of the tractor. What's more, he gets it on the toughest, most demanding jobs.

Besides power shift transmission, you have your choice of direct drive or torque converter in both the 335 HP D9E and the 235 HP D8H Tractors. For complete details on the new power shift transmission, see your Caterpillar Dealer. He's ready to show how it works . . . demonstrate ruggedness under complete, easy one-hand control!

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STEP UP PRODUCTION AND PROFITS WITH POWER SHIFT TRANSMISSION

Construction Pace Slackens in May

Heavy construction contracting last month couldn't keep up with the record-breaking pace set in April. May's awards of $1.18 billion are down 10% from April's total and 9% below May, 1959.

Despite May's decline, the $8.5 billion booked in the first five months of 1960 is 4% ahead of the value of contracts awarded during the same period last year.

A slowdown in mass housing and commercial building caused a drop in private jobs. The $903 million worth of this work accounted for last month is 21% below the April level.

Private construction for May was 10% below that of the same month last year. This cut the year-to-date gain over 1959 to 15%. At the end of April the value of contracts awarded for 1960 was 23% higher than those of the first four months of 1959. But the $4.5 billion in new business from private sources this year tops that of any year since the 1956 boom.

Public construction awards in May amounted to $900 million, a 5% gain over April. State and municipal orders went up 1%, to $705 million. Federal work was $195 million, a 24% increase.

Mass housing awards continue to outstrip all other types of construction, although May's $431 million was well below figures for April and for May, 1959. May had none of the giant projects that boosted April's total.

Awards of $252 million for industrial building brought this category past the $1-billion level for 1960. Power and chemical plant work made May the best month for industrial work since last year's September peak.

Highways rank first among public awards, $346 million. This is 31% over April and 10% better than May, 1959. It brings the five-month total to 4% over the same months of 1959.

Public buildings, other than housing, are giving contractors substantially more business. May's $239 million spurts 31% ahead of April, setting the best pace for any month since May, 1959. But contracts for the year to date still lag behind 1959.

Wage Raises Boost Cost Indexes

A continuing flow of wage increases under new contracts is again responsible for pushing building and construction costs to record highs.

ENR's 20-Cities Construction Cost Index climbed to 826.24 in June as new contracts boost all common labor wages 15 cents an hour in Cincinnati and 10.3 cents in Detroit. A new four-year contract in Kansas City gives heavy construction common labor a 12.5-cent hourly raise. The index for May was 820.18.

The 20-Cities Building Cost Index also set an all-time record, rising to 559.93, an increase of only 2.17 points over May, however. Both indexes are based on 1913 as 100.

Wage increases spread throughout the country influenced building costs. Carpenters in Cincinnati won a 15-cent hourly pay boost and bricklayers there got a 14.5-cent increase. Structural ironworkers made gains in two cities, a 25-cent jump in Denver and a 12.5-cent-per-hour incerase in Kansas City. New York bricklayers get 16 cents more per hour. Carpenters got increases of 25 cents in Pittsburgh, 23.5 cents in San Francisco, 10 cents in Baltimore and 16 cents in Chicago (see p. 96).

Falling lumber prices held the rise of the building and construction indexes down slightly. Fir lumber prices have been cut to $4 per Mfbm in New York City. In lumber yards in Chicago and San Francisco, the price of fir 2x4 has been cut by $1. Also in Chicago the price of pine lumber went down $1 per Mfbm.

Engineering Construction Contracts for May

Thousands of Dollars (000 omitted)

	May, 1960								U. S. Cumulative			Canada
	New England	Middle Atlantic	South	Mid-West	Mississippi to Rockies	Far West*	Total U. S.	% Change '59 to '60	1960 (21 wks)	1959 (22 wks)	% Change '59 to '60 (av. wk)	May 1960
Public Works, Total	57,471	120,755	156,331	171,466	200,232	193,569	899,824	− 7	3,948,011	4,393,187	− 6	99,793
Waterworks	1,166	3,979	2,124	8,727	10,498	5,145	31,639	−26	182,362	189,094	+ 1	2,331
Sewerage	2,011	7,072	4,585	6,640	8,241	6,805	35,354	−36	213,215	261,348	−15	2,652
Bridges	143	5,246	7,167	11,002	10,646	3,129	37,393	− 9	351,981	242,449	+52	17,919
Earthwork, waterways	1,328	3,990	13,282	4,043	28,391	21,838	72,878	+ 6	288,368	350,646	−14	1,604
Streets and roads	17,686	51,121	52,523	89,058	73,035	62,871	346,294	+10	1,253,106	1,259,766	+ 4	11,202
Buildings: Residential	4,447	4,494	14,069	1,120	5,758	11,237	41,125	−39	203,923	294,307	−27	960
Other	27,876	40,069	53,266	28,623	31,377	57,433	238,644	−13	930,623	1,163,505	−16	45,006
Unclassified	2,814	4,778	9,315	22,193	32,286	25,111	96,497	− 9	524,433	631,452	−13	9,119
State & Municipal	55,570	116,713	90,490	164,917	140,782	135,960	704,452	+ 7	3,037,500	3,054,517	+ 4	77,808
Federal	1,901	4,042	65,841	6,549	59,450	57,589	195,372	−37	910,511	1,338,650	−20	12,985
Private, Total	65,250	189,283	87,138	157,992	328,219	75,565	903,447	−10	4,529,288	4,140,404	+15	162,132
Bridges	.....	.....	.....	100	.....	.....	100	−50	1,499	350	+344	.....
Buildings: Industrial	6,069	44,256	67,199	27,056	97,825	9,536	251,941	−10	1,023,329	1,160,794	− 8	112,699
Mass housing	41,689	112,282	4,794	88,677	144,742	39,042	431,226	−17	2,257,446	1,868,742	+27	12,686
Other	17,017	30,216	13,862	27,879	44,757	24,304	158,035	−18	858,053	948,898	− 5	18,505
Unclassified	475	2,529	1,283	14,280	40,895	2,683	62,145	+255	388,961	161,620	+152	18,242
Total May 1960—4 weeks*	122,721	310,038	243,469	329,458	528,451	269,134	1,803,271	− 9	.....	.....	....	252,925
Total Apr. 1960—4 weeks*	86,727	393,472	267,692	379,932	374,105	503,410	2,005,338	....	.....	.....	....	132,385
Total May 1959—4 weeks*	81,070	442,699	280,579	369,405	295,971	510,160	1,980,484	....	.....	.....	....	98,118
Five Months—1960* (21 wks)	522,427	1,903,322	1,149,941	1,442,952	1,919,265	1,539,392	.....	....	8,477,299	.....	+ 4	963,526
Five Months—1959* (22 wks)	529,961	1,983,514	1,443,968	1,337,996	1,783,086	1,455,046	.....	....	.....	8,533,571	....	537,944
% Change '59 to '60 (Av. wk.)	+3	+1	−16	+13	+13	+11	.....	....	.....	.....	....	+61

* Includes Alaska & Hawaii contracts

Craft Unions Win NLRB Ruling

- **Steelworkers' efforts to block use of outside contractors struck down as secondary boycott.**
- **But the board's reasoning may lead industrial unions to seek more no-contracting-out clauses.**

The construction industry's efforts to prevent in-plant maintenance and construction work from falling into the hands of plant industrial workers have been simultaneously strengthened and jeopardized by a new National Labor Relations Board decision.

The board has ruled that a local of the steelworkers union cannot picket contractors hired by the Tennessee Coal and Iron Division of U. S. Steel Corp. in an effort to prevent TCI from contracting out the construction of a multi-million-dollar addition to its existing sintering plant in Birmingham, Ala. Such picketing, the board said, creates an illegal secondary boycott.

On its face, the decision affords industrial concerns that have retained the right to do their construction work by contract assurance that they can hire outside contractors without being roadblocked by their in-plant unions. And it gives outside contractors similar assurance that they can go ahead with the work without interference from the in-plant unions.

In reaching its conclusion, however, the NLRB relied heavily on the fact that the steelworkers union at TCI had no "colorable claim" to the construction work. The work was not covered by an NLRB certification and the union's labor contract with TCI did not contain a clause restricting the company's right to contract out construction work.

The implication is that the board might have upheld the strike as part of a lawful primary dispute if the union had had a legitimate claim to the work. As a result, industrial unions may now be encouraged to push more vigorously for no-contracting-out clauses in their labor contracts.

The problem has long been a thorn in the side of the AFL-CIO. And it has received a great deal of attention from the labor and contractor groups that are participating in the Construction Industry Joint Conference.

In the TCI case, the plant was organized by the steelworkers. TCI contracted the new construction work to Koppers Company, Inc. and Sullivan, Long and Hagerty. The steelworkers then demanded that they be given so much of the work as fell within their job classifications. TCI refused.

The steelworkers picketed the construction site and the main entrance. Work at the construction site was stopped for two months.

The construction work was located 600 to 800 ft from the main plant. At the time of the picketing, only employees of the subcontractors were at work.

The board viewed the situation from several angles and concluded that the picketing constituted a secondary boycott and not primary picketing, as the steelworkers contended.

There were two principal reasons for the board's conclusions:

- The steelworkers could show no lawful claim to the work being performed by the outside contractors who remained neutral parties in the union's dispute with TCI. As neutrals, the contractors were entitled to the protection of the law. The fact that some of the steelworkers had job classifications covering construction work was not persuasive, the board said, because the classifications applied only when TCI chose to act as its own contractor.
- The picketing was obviously designed to embroil employees of the neutrals in the dispute. Its purpose was to create a work stoppage to force the subcontractors to stop doing business with Koppers and Sullivan and to force the latter to stop doing business with TCI. The existence of such a purpose is all the law requires to create an unlawful secondary boycott.

What Does the Boycott Bill Do?

The Building Contractors Association of New Jersey has asked that the Administration and the building trades unions clearly define the intent and purposes of the controversial common situs picketing bill, which they support. The bill is still before Congress but the chance of any action on it is regarded as slim.

The request was personally presented to Labor Secretary James P. Mitchell by a 15-member delegation headed by association director Paul J. Brienza.

The association contends that proponents of what is commonly known as the Thompson bill have so far explained the bill only in negative terms (ENR May 19, p. 185). "There are so many don'ts enumerated to assure those in opposition to the bill that it is not intended to do what they fear," Mr. Brienza says, "that one is compelled to ask one's self, 'What do the proponents of this bill really think it does?'"

If all the "don'ts" are believed, he adds, the bill would actually do nothing.

Under the bill, the secondary boycott provisions of the federal labor law would not be so interpreted as to prevent a legitimate strike over wages, hours or working conditions against one of several construction employers working at the same site. This, in effect, would, reverse a contrary holding in the Denver Building Trades case.

Members of the New Jersey contractors association fear the bill is essentially an attempt to obtain "red carpet organizing opportunities." They contend it would permit a "shotgun approach" to organization through employers rather than employees, and place neutral employers in the crossfire of disputes in which they are not involved.

Contractors operating in states with separate bid laws, they assert, would encounter particular hardship because the selection of subcontractors is beyond the control of the general contractor.

The New Jersey group also contends that the picketing safeguards laid down by the National Labor Relations Board in the Moore Drydock case give building trades unions adequate freedom to strike common construction sites. "If these standards are not acceptable," they ask, "why not?"

The bill is before the Rules Committee. The Labor Department continues to defend it as clear, concise and carefully drawn. And Sen. John Kennedy (D., Mass.) insists it will come to a floor vote.

Two-Year Pacts Continue in Vogue

Wage increases of 25 cents or more for two years are common as strikes still plague the industry

Members of the AFL-CIO building trades unions continued to chalk up substantial wage gains last week amid strikes, both old and new, that slowed or paralyzed construction work across the country.

In Chicago, the electrical workers, who now receive $4.10 an hour, settled for a two-year contract that will boost wages by 20 cents more each year, commencing July 5. Payments to the welfare fund, now totaling $11 million, are suspended until July 1961. But a new employer contribution of one cent an hour is set up for a "Joint Electrical Apprenticeship Training Fund" for operation of an electronics school by the union.

One of the contract's more novel provisions stipulates that "all faulty work performed, chargeable to failure to inspect, and test, or to negligence or incompetence, shall be remedied at the expense of such journeymen."

Elsewhere, two-year agreements for 25 cents an hour, or more, appear to be running in the lead. Some of them shape up like this:

- Tile and marble mechanics in bricklayers Local 11, Rochester, N. Y., won 45½ cents—21½ cents now and 24 cents next May, giving them a new scale of $4.00.
- Eight Toledo, Ohio, building trades signed agreements calling for wage boosts of 25 cents over two years. Installments are nine cents now, eight in November and eight next May.
- Roofers in Des Moines, Iowa, have taken a two-year contract for 33 cents—18 now and 15 in 1961, making their present scale $3.05.
- In Little Rock, Ark., sheet metal workers signed for 35 cents over two years.
- Cape Cod, Mass., carpenters ended a 57-day strike by tentatively accepting 40 cents over the next two years. If the contract is ratified, members will get an immediate increase of 15 cents, five cents on November 1, 10 cents next May 1, five cents October 1, 1961 and five cents February 1, 1962.
- Bricklayers in Rochester, N. Y., have won 45 cents in a two-year contract—22½ cents each year.
- Laborers in San Diego, Calif., have settled with members of the Masonry Contractors Association for a 46-cent increase over the next two years. They have also signed a 36-cent, 18-month contract with several independent concrete block plants.
- Iron workers in Jacksonville, Fla., have won 27½ cents for rodmen—10 cents now, five cents in November and 12½ cents next May. But structural iron workers took slightly less—10 cents now and 12½ cents next year. Iron workers at Cape Canaveral will get 10 cents now, 7½ cents next October.
- Plumbers in Daytona Beach have settled for 15 cents each year under a new two-year contract.

Among the new longer-term contracts is a three-year, 35-cent agreement for union bricklayers in New Jersey's Burlington County. The increase, which will push the union scale to $4.50, is payable in four installments—7½, 2½, 12½ and 12½. An additional 10 cents an hour is also provided for the welfare fund to which employers have been contributing 10 cents.

Larger increases are scheduled for Des Moines, Iowa, sheet metal workers under a new three-year contract. A total increase of 55 cents is payable in annual installments of 20, 17½ and 17½ cents, making the present scale $3.60.

Meanwhile, a one-year, 10½-cent contract has been signed by construction laborers in 10 central Colorado counties and a one-year, 12½-cent agreement has been accepted by electrical workers in Seattle, Wash. The latter gives journeymen electricians a scale of $3.92½.

Among new strikes that developed as negotiations collapsed during the week were work stoppages by two Chicago area trades—iron workers and plasterers—which caused a major slow-down in several hundred million dollars worth of construction work on June 1.

Plumbers employed by members of the Mechanical Contractors Association of Central Ohio went on strike the same day.

And a bargaining impasse with six building trades unions in Buffalo, N. Y., stalled work on nearly a $100 million worth of work projects.

The Buffalo stoppage followed union rejection of an employer offer of a 55-cent wage increase over a three-year period. In making the offer, the employers had granted concessions on all issues except a demand for payment of parking fees for carpenters who have to pay to park near job sites.

The breakdown marked the failure of a previously established timetable to expedite contract negotiations.

Law Snarls Teamster Monitors

The U.S. Court of Appeals for the District of Columbia last week cut two of the legal knots that have tied up the teamster board of monitors for several months. But it did little to dispel the feeling that the monitor system may never work.

The court, in an attempt to straighten out the composition of the board, set aside a lower court order firing monitor Lawrence T. Smith, an attorney. Mr. Smith represents the dissident teamsters who filed the original suit contesting the election of James Hoffa as teamster president. He succeeded Godfrey Schmidt, one of the original monitors.

Next step under the court's decision if the lower court wishes to take it, is formal removal procedure against Mr. Smith. This can lead to further appeals.

The court also denied monitor chairman Martin F. O'Donoghue the right to act independently of the other two monitors and ruled that the monitors can act only by majority vote. This may kill the board's effectiveness if Mr. Smith retains his seat, because the original dismissal was attributed to an alleged failure on the part of Mr. Smith to cooperate with Mr. O'Donoghue in the latter's efforts to clean up the union.

Meanwhile, Mr. O'Donoghue is feuding with William Bufalino, who is the teamster-designated member of the board of monitors. Mr. O'Donoghue last week accused Mr. Bufalino of being a teamster tool for the creation of dissension.

On other fronts, Mr. Hoffa, is trying to get Mr. O'Donoghue ousted and prosecuted for alleged conflicts of interest.

The dissension is also spilling over on Capitol Hill, where Congress has been holding hearings on a bill to end the monitorship.

Mr. Bufalino's predecessor, Daniel Maher, told the hearing committee that the monitor problems are apt to be before the courts for 10 years. He said the board is costing teamster members about $2,000 a day and has become "a one-man grand jury, committed in advance to an anti-defendant program operating with virtually unlimited funds and paid for by its victims."

Engineering Unionism Pushed on Two Fronts

Efforts to make industrial unions more attractive to engineering personnel continued to unfold last week, when one of the pioneers in the field voted to establish an Engineering Employees Council.

The action was taken by the International Union of Electrical Workers' District 4, which has been showing an increasing interest in New York and New Jersey engineers.

District 4 hopes, through the new council, to better serve the interests and needs of its professional and technical members, many of whom were formerly associated with Engineers and Scientists of America.

Formation of the council had the blessing of IUE President James Carey and is expected to be duplicated in other areas. It was anticipated by Engineers Association, a former ESA member, which voted last month to affiliate with IUE and District 4.

Meanwhile, an attempt to unify the efforts of all engineering unions has been started by a California group—Engineers and Architects Association—which has voted to undertake formation of a national council of engineering unions.

An exploratory conference may be held early in the fall.

Back Door Organizing Curbed by Labor Board

Tighter curbs were placed on union organizing last week when the National Labor Relations Board unanimously ruled that even peaceful picketing is illegal if one of its objects is to force an employer to recognize a union without the consent of his workers.

The decision is the first important ruling on the new recognition picketing provisions of the Landrum-Griffin labor law.

Involved in the case was a small California company that had been picketed by the teamsters union before the law was passed and for a period of 17 days afterwards.

The union not only failed to file a petition for a representation election, but it also notified suppliers of the picketing. Result was that pickups and deliveries were stopped.

The board held that the union had had a reasonable time to convince the workers to join the union and ordered that the picketing be stopped.

It also ruled that the stopping of pickups and deliveries was a violation of the law.

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.40 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record
P.O. Box 12, New York 36, N. Y.

Bids: June 16, 1960

Soil Explorations and Foundation Investigations Grand Central Parkway Reconstruction

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 a.m., Advanced Eastern Standard Time, on June 16, 1960, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON GRAND CENTRAL PARKWAY RECONSTRUCTION, SECTION 3, KEW GARDENS INTERCHANGE TO CLEARVIEW EXPRESSWAY INTERCHANGE, QUEENS COUNTY, WHICH CONSTITUTES CONTRACT SPEC. NO. SM-162.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, New York.

(b) Mr. Austin M. Sarr, District Engineer, New York State Department of Public Works, 325 West Main Street, Babylon, Long Island, New York.

(c) Mr. William Mende, Principal Building Construction Engineer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. Refunds of deposits for plans, specifications and proposal will be made *only* in case the deposits of individual sets are $10.00 or more, per Chapter 835, Laws of 1960.
The Engineer's Estimate of cost for this work is $26,275.00.
Proposal for this contract must be submitted in separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $1,500.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law as set forth in "Instruction to Bidders." The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPERINTENDENT OF
PUBLIC WORKS

Bids: June 15, 1960

Narrows Bridge—Contract NB-4

TRIBOROUGH BRIDGE AND TUNNEL AUTHORITY

SEALED BIDS WILL BE RECEIVED BY Triborough Bridge and Tunnel Authority at its office, Administration Building, Randall's Island, Manhattan, New York 35, N. Y., as follows:
Until 11 A.M. Wednesday, June 15, 1960
For Narrows Bridge Contract No. NB-4, Furnishing and Delivering Metalwork for Cable Anchorages. The work includes cable anchor bars, structural framing and cable saddle castings. The bid must be accompanied by a deposit in the amount of $150,000.

Plans, specifications and contract documents may be purchased at the office of the Authority for $20.00, which will not be refunded.

Bids: June 27, 1960

Extension to Existing Dock Marine Terminal, Wilmington, Delaware

ADVERTISEMENT FOR BIDS

SEALED BIDS or proposals for performing the work and supplying the materials for the construction of a 1000-foot extension to the existing dock at the Marine Terminal in Wilmington, Delaware will be received at the office of the Clerk of City Council, Public Building, 10th and King Streets, Wilmington, Delaware, until 2:00 P. M., Eastern Daylight Time, on June 27, 1960, at which time and place they will be publicly opened and read in the presence of the City Treasurer and a representative of the Board of Harbor Commissioners of Wilmington.

For the convenience and use of prospective bidders, prints of the contract drawings, the specifications for the work and materials, other information for bidders, the forms for the bids, the contract and the required bond are available at the office of the Clerk of Council of the City of Wilmington, in the Public Building, 10th and King Streets, Wilmington, Delaware, also at the office of the Marine Terminal in Wilmington, Delaware. Copies of the drawings and the specifications may be obtained at the office at the Marine Terminal. A deposit of Twenty-five Dollars ($25.00) will be required therefor, which will be repaid upon the return, in good condition, of such copies.

Copies of the drawings, necessary for the execution of the work will be furnished upon request, without cost, to the successful bidder or sepia reproductions will be supplied.

A certified check in an amount equal to ten per cent (10%) of the bid shall be submitted with each bid as a guarantee that the successful bidder will execute a contract.

No bid may be withdrawn after it shall have been deposited with the Clerk of Council; however, the right is reserved to reject any and/or all bids and to waive informalities therein.

By order of BOARD OF HARBOR COMMISSIONERS of Wilmington, Delaware
Ralph B. Richardson,
President

Bids: July 12, 1960

Notice for Proposal of Natural Gas Franchise

Proposals for an exclusive natural gas franchise will be accepted in the office of the City Clerk of the City of Wilton Manors, Florida, 524 N. E. 21st Court, Wilton Manors, Fort Lauderdale, Florida, until 8:00 o'clock P. M. on Tuesday, July 12, 1960.

Sealed bids for new bulkhead and boathouse at the U. S. Custom House, Ogdensburg, N. Y., Project #00779(2) will be received until 2:00 P.M. EDST on June 23, 1960, and then publicly opened. Bidding material may be obtained from the Business Service Center, General Services Administration, 250 Hudson Street, New York 13, N. Y., or from the Custodian of the Building where the work is to be done.

(Continued on the following page)

Bids: June 23, 1960.

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, Canal Law and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A. M., advanced standard time, which is nine-thirty o'clock A. M., eastern standard time, on the 23rd day of June 1960, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. Nickerson, District Engineer, 353 Broadway, Albany, New York						
Albany (Rte. 9W)	R.C. 60-106	Ravena-Becker Corners, S.H. 8349 Bethlehem Center-Beckers Corns., S.H. 5643 Albany-Bethlehem Center, S.H. 5499	10.40	Asphalt Concrete	$30,000 Plans $5	$374,000
Essex, Greene, Rensselaer, Saratoga & Schenectady	FARDC 60-1	Permanent Radar Detector Traffic Counter Stations on S.H. 891, 8384, 610, 5314 & CR 30 Project No. SWHP-1(17)	....	Installing 5 Radar Detector Traffic Counter Stations	$400 Plans $5	8,900
Rensselaer (Rte. 20)	R.C. 60-88	Schodack Center-Nassau, S.H. 536; Nassau Village, S.H. 949; Nassau Vill., S.H. 5163; Nassau-Brainard, S.H. 285; Riders Mills-Brainard, S.H. 1521; East Nassau-Brainard, S.H. 439	7.29	Asphalt Conc. = 7.26 Mi. Misc. Work = 0.03 Mi.	$11,000 Plans $5	208,000
Saratoga (Rte. 50)	R.C. 60-94	Ballston-Ballston Lake, Pt. 2, S.H. 5085; Ballston-Ballston Lake, Pt. 1, S.H. 5062	5.09	Asphalt Concrete	$15,000 Plans $5	268,000
Saratoga (Rte. 9)	FARC 60-102	Malta-Saratoga, S.H. 611 Project No. F-U-639(18)	0.78	Asphalt Conc. = 0.71 Mi.; Misc. Work = 0.07 Mi. Comp. Pl. Gird. 113' Span Total	$28,000 Plans $5	512,000
Schenectady (Rte. 20, 406 & 158)	R.C. 60-86	Guilderland-Duanesburg, Pt. 2, S.H. 8097; Gifford Church-Gifford Corns., S.H. 1680; Schenectady-Guilderland, S.H. 577	11.50	Asphalt Conc. = 10.93 Mi. Misc. Work = 0.57 Mi.	$27,000 Plans $5	452,000
Washington (Rte. 22)	FARC 60-98 FASH 60-5	Granville-Troy Stage, S.H. 104 Granville Connections Project No. F-523(8)	3.55 (0.16 Acc.)	Asphalt Conc. = 3.47 Mi.; Asph. Conc. (Acc.) 0.16 Mi. Misc. Work = 0.08 Mi.; Prestressed Conc. Beam Bridge Span 47.3'	$59,000 Plans $5	1,058,000
Washington (Rte. 22A)	R.C. 60-87	Middle Granville-Hampton-Fair Haven, S.H. 1937	7.49	Asphalt Concrete	$15,000 Plans $5	267,000
DISTRICT No. 2, Lacy Ketchum, District Engineer, 109 No. Genesee Street, Utica 1, New York						
Herkemer, Montgomery & Oneida	FARDC 60-2	Permanent Radar Detector Traffic Counter Stations on S.H. 8012, 5028, 5346 and City of Utica Project No. SWHP-1(17)	....	Installing 4 Radar Detector Traffic Counter Stations	$300 Plans $5	5,300
DISTRICT No. 3, Earl E. Towlson, District Engineer, 333 E. Washington Street, Syracuse, New York						
Onondaga, Oswego & Wayne	FARDC 60-3	Permanent Radar Detector Traffic Counter Stations on S.H. 5016, 429, 1516 and in City of Oswego Project No. SWHP-1(17)	....	Installing 4 Radar Detector Traffic Counter Stations	$350 Plans $5	6,300
Wayne	FASS RC 60-9	East Penfield-Walworth, Pt. 2 (FASS 58-15), C.R. 138 Project No. S-322(3)	5.31	Asphalt Conc., Type 1A	$3,000 Plans $5	56,000
DISTRICT No. 4, B. F. Perry, District Engineer, Barge Canal Terminal, Rochester 1, New York						
Livingston (Rte. 63)	R.C. 60-95	Dansville-Geneseo, Pts. 1 & 2, S.H. 5723	4.54	Asphalt Concrete	$12,000 Plans $5	219,000
Livingston & Ontario	FASS 60-7	Naples-Hunts Hollow-Honeoye, Pt. 5, C.R. 36 Project No. S-475(1)	7.10	Bit. Double Surface Treat. Pavt. = 7.05 Mi. Misc. Work = 0.05 Mi.	$55,000 Plans $5	1,010,000
Monroe, Livingston (Rte. 383, & 36)	R.C. 60-101	Garbutts Crossing, S.H. 5097; Scottsville-Mumford, S.H. 5046; Leroy-Caledonia-Mumford, S.H. 5021	4.34	Asphalt Concrete	$23,000 Plans $5	416,000
Monroe (Rte. 31)	FARC 60-91	Holley-Brockport Pt. 2, S.H. 5425 Project No. F-1037(4)	2.34	Asphalt Concrete	$19,000 Plans $5	352,000
Ontario (Rte. 5 & 20)	FARC 60-97	Geneva-Canandaigua, Pt. 2, S.H. 207 Project F-338(10)	5.56	Asphalt Concrete	$20,000 Plans $5	354,000
Wyoming (Rte. 78)	R.C. 60-99	Java Center-Waldo Corns.-Smith Corners, S.H. 1716	4.07	Asphalt Conc. = 4.03 Mi. Misc. Work = 0.04 Mi.	$10,000 Plans $5	185,000
DISTRICT No. 5, E. G. H. Youngmann, District Engineer, State Office Bldg., 65 Court Street, Buffalo 2, New York						
Erie (Rte. 20)	FARC 60-90	Transit Road, Pt. 4, S.H. 9217 Project No. F-1079(9)	0.07	Asphalt Conc. Type 2B; Widen & Rehabilitate; Pl. Gird. Br. 3 Sp. 170.5' Total	$5,000 Plans $5	88,000
Erie (Rte. 18)	FARC 60-92	Hamburg-North Collins, S.H. 523 Proj. No. F-750(19)	4.35	Asphalt Conc. = 4.21 Mi. Misc. Work = 0.14 Mi.	$30,000 Plans $5	525,000
Erie & Niagara (Rte. 270)	M 60-5	New Home Bridge (E-241); over Erie Canal near Village of Wendelville	....	Cleaning & Painting Bridge	$500 Proposal Only $2	9,400
DISTRICT No. 6, William J. Dennis, District Engineer, State Office Bldg. 30 West Main Street, Hornell, New York						
Steuben (Rte. 15)	FARC 60-100	Avoca-Wallace-Cohocton, S.H. 5564 Project No. F-627(13)	0.47	Asphalt Conc. = 0.46 Mi.; Misc. Work = 0.01 Mi. Prestress. Conc. Br. Span 74.5'	$12,000 Plans $5	208,000
DISTRICT No. 7, Robert W. Sweet, District Engineer, 444 Van Duzee Street, Watertown, New York						
Franklin (Rte. 30)	R.C. 60-104	Duane Center-Mountain Pond, S.H. 9007	5.40	Asphalt Conc. Type 1A	$75,000 Plans $5	1,319,000
Jefferson (Rte. 3)	FARC 60-85	Oswego County Line-Aspinwall Corners, Pt. 2, S.H. 8393 Project No. F-539(10)	4.88	Asphalt Conc. Type 1A	$8,500 Plans $5	153,000
Lewis (Rte. 12D)	R.C. 60-93	Oneida County Line-Turin, S.H. 5327	4.48	Asphalt Conc. Type 1A	$7,500 Plans $5	136,000
St. Lawrence (Rte. 37)	FARC 60-83	Morristown-Hammond, Pt. 2, S.H. 970 Morristown-Hammond, Pt. 2, S.H. 970A Project No. F-650(10)	4.98	Asphalt Conc. Type 1A	$60,000 Plans $5	1,082,000
St. Lawrence (Rte. 37)	FATC 60-3	City of Ogdensburg, Rte. 37 Arterial, S.H. (FAC 57-16); Ogdensburg: Rte. 37 Connections, S.H. (FASH 57-19) Project No. U-650(11)	2.08	Traffic Signals	$2,500 Plans $5	48,000
DISTRICT No. 8, Kurt G. Rauer, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Columbia (Rte. 20)	R.C. 60-115	New Lebanon-Brainard, S.H. 615 Pittsfield-New Lebanon, S.H. 4	6.60	Asphalt Conc. = 2.49 Mi Misc. Work = 4.11	$14,000 Plans $5	259,000
Columbia, Dutchess, Orange, Ulster & Westchester	FARDC 60-4	Permanent Radar Detector Traffic Counter Stations on S.H. 762, 135, 537, 453, 8256, 8408, 53-15, 308, 231, 5372, 1456, City of Poughkeepsie & on Hutchinson River Pky. Project No. Swhp-1(17)	....	Installing 13 Radar Detector Traffic Counter Stations	$900 Plans $5	16,000
Orange	FASS 60-8	Forge Hill Road, C.R. 74 Project No. S-544(1)	0.36	Bit. Double Surface Treatment Comp. I-Beam Bridge, 3 Spans Total Length 256.2 ft.	$17,000 Plans $5	319,000
Putnam (Rte. 301)	FARC 60-66	McKeels Corners-Kent Cliffs, S.H. 9082 Project No. S-354(2)	2.21	Asphalt Concrete	$27,000 Plans $5	490,000
Ulster (Rte. 213)	FARC 60-89	Eddyville Bridge, S.H. 5192; Kingston-Rifton, S.H. 116 Project No. US-S-485(2)	1.45	Asphalt Concrete	$20,000 Plans $5	355,000
Westchester	TS 60-8	Sprain Brook Parkway (Cross County Parkway to Tuckahoe Road)	2.27	Traffic Signs	$2,500 Plans $5	42,000
DISTRICT No. 9, Joseph C. Frederick, District Engineer, 71 Frederick Street, Binghamton, New York						
Broome (Int. Tr. Rte. 81)	FISH 60-4	Inter. Rte. 505, Penna. St. Line-Five Mile Point (Sunset Drive to Route 17) Project No. I-81-1(11)	0.46 (0.46 Acc.)	9" Cem. Conc. Pavt. = 0.72 Mi.; Asphalt Conc. = 0.18 Mi.; Misc. Work = 0.02 Mi. Incl. Pier Footings on HGS at Aetna Rd.	$32,000 Plans $5	573,000
Broome (Rte. 17)	R.C. 60-96	Windsor-Deposit, S.H. 5338 Deposit, S.H. 265	6.71	Asphalt Concrete	$16,000 Plans $5	293,000
Chenango (Rte. 26)	FARC 60-84	Cincinnatus-Taylor-Pitcher, Pt. 2, Pitcher-South Otselic, S.H. 8161; Otselic-South Otselic, Pt. 2, S.H. 663 Project No. F-424(4)	0.37	Top Course, Bit. Mac. Type 1 = 0.35 Mi. Misc. Work = 0.02 Mi. Double Box Br.-Skew Span 31 = Ft.	$4,500 Plans $5	83,000
Sullivan	FARDC 60-5	Permanent Radar Detector Traffic Counter Station on County Rd. 53 Project No. SWHP-1(17)	....	Installing A Radar Detector Traffic Counter Station	$60 Plans $5	1,100
DISTRICT No. 10, Austin M. Sarr, District Engineer, 328 W. Main Street, Babylon, L. I., New York						
Bronx (Int. Tr. Rte. 278)	FIBE 60-1	Interstate Route Connection 516 & 517 Bruckner Expressway (Sect. I-Contract 3) (LaFayette Ave.-Lowell St.) Project I-278-1(48)	0.85 (1.75 Acc.)	8½" Reinf. Conc. Slab Roadway (Main Line) = 0.78 Mi.; Colored Cem. Conc. Pavt. = 0.07 Mi. Asph. Conc. (Acc.) = 1.17 Mi. Cem. Conc. Pavt. (Acc.) = 0.56 Mi. Incl. Struct. Steel Via. 57 Span, Total 4,118' Welded Girder & W.F. Beam 4 Span 406.5'	$740,000 Plans $10	13,430,000
Nassau	BP 60-74	City of Long Beach (Roosevelt and Pacific Boulevards)	....	Beach Protection, 2 Stone Groins	$25,000 Plans $10	480,000

OFFICIAL PROPOSALS

(*Continued from preceding page*)

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specification, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

District of Columbia—Highway Construction—Dept. of Hwys. & Traffic, D. C.; May 24, 1960. CONSTRUCTION OF ROADWAY AND STRUCTURES, NORTH APPROACH TO NEW WEST HIGHWAY BRIDGE OVER POTOMAC RIVER, VICINITY 14TH ST., FEDERAL AID INTERSTATE PROJECT I-IG-95-1(8)0, Contract No. 3, Invitation No. C-60172-H, consisting of approx. 12,490 lin. ft. Combination Portland Cement Concrete Curb & Gutter, 9" Curb; 8,900 Cu. Yds. Reinforced Portland Cement Concrete Protective Basin; 4,990 Cu. Yds. Substructure Concrete; 271,750 lbs. Structural Low Alloy Steel; 5,310 Cu. Ft. Class B Stone Masonry; 2,180 Cu. Ft. Class A Stone Masonry; and 783,500 lbs. Structural Carbon Steel. (Wage Rates have been predetermined by the Labor Dept. and will be incl. in Add. #1). "Pre-bid meeting will be held to answer questions of bidders on June 16, 1960, at 2:00 PM (EDT) in Rm. 500 District Bldg., 14th and E Streets, N.W., Wash. 4, D. C." Bid forms, plans and specifications are now available from Supervisor, Bid & Contract Division, Procurement Office, D. C., Rm. 404, 499 Pennsylvania Ave., N.W., upon deposit of a certified check for $50.00 per set, payable to D. C. Treasurer. (Phone NA 8-6000, Ext. 2378). SEALED BIDS to be opened 3:00 PM, EDT, June 23, 1960, in Rm. 424, 499 Pa. Ave., N.W.

Bids: June 17, 1960

Proposed Sanitary Sewer District For Boulder, Colorado

Sealed bids for the construction of a Sanitary Sewer and appurtenances will be received at the office of the City Clerk, City of Boulder, Colorado, up to 10:00 A.M., June 17, 1960 and then publicly opened by the City Clerk. Principal items are 14,679 Lin. Ft. 8"; 5,170 Lin. Ft. 10"; and 490 Lin. Ft. 12" Clay Sewer Pipe in place and appurtenances.

Plans, specifications and contract documents may be obtained at the City Clerk's office. A five dollar ($5.00) deposit is required, which will be returned when plans and specifications are returned in good condition.

Pursuant to the provisions of Chapter 80, Article 22, Section 2, of Colorado Revised Statutes, 1953, preference is hereby given to materials, supplies, and provisions produced, manufactured or grown in Colorado, quality being equal to articles offered by competitors outside the state.

The City of Boulder reserves the right to reject any or all bids and to waive defects in bids. No bids may be withdrawn for a period of fifteen (15) days after the time set for opening of bids.

Bids: June 28, 1960

La Guardia Airport Runway 4-22 Approach Light Pier Contract LGA-310.014

ADVERTISEMENT
THE PORT OF NEW YORK AUTHORITY

Sealed proposals for the construction of an approach light pier for Runway 4-22 at LaGuardia Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, June 28, 1960 at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the Office of the Assistant Chief Engineer for Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, June 9, 1960

Bids: June 22, 1960

Painting of International Peace Bridge

Sealed proposals will be received at the office of the Buffalo and Fort Erie Public Bridge Authority, Peace Bridge Plaza, Buffalo 13, New York, until 10:00 A.M., Eastern Daylight Saving Time on the 22nd day of June 1960, at which time they will be publicly opened and read aloud, for the following work.

Cleaning and Painting of all Superstructural Steel of the International Peace Bridge between Fort Erie, Ontario and Buffalo, New York.

The drawings, specifications and contract documents may be examined at the office of McFarland-Johnson, Consulting Engineers, Suite 405 Sidway Building, 775 Main Street, Buffalo 3, New York, or at the office of the Buffalo and Fort Erie Public Bridge Authority, Peace Bridge Plaza, Buffalo 13, New York. Copies may be obtained upon deposit of $25.00 per set of which $15.00 will be refunded upon return of sets in good condition within ten (10) days of the award of the contract.

Each bid shall be accompanied by a certified check, payable to the Buffalo and Fort Erie Public Bridge Authority, for an amount of $15,000.

The right is reserved to reject any or all bids when such rejection is in the interests of the Buffalo and Fort Erie Public Bridge Authority.

BUFFALO and FORT ERIE
PUBLIC BRIDGE AUTHORITY
George Weir, Secretary-Treasurer

Bids: July 15, 1960

The Republic of the Sudan Ministry of Irrigation & Hydro-Electric Power Roseires Dam and Associated Works

The Ministry of Irrigation & Hydro-Electric-Power of the Republic of the Sudan propose to call for tenders for the main Civil Engineering and Associated Works of the Roseires Dam scheme in the vicinity of the Damazin Rapids on the Blue Nile. The site is about 5½ kilometres upstream of the town of Roseires approximately 500 kilometres South of Khartoum.

The main Civil Engineering Works will comprise the construction of a heavy buttress concrete dam across the river channel, with earth dams on either flanks, together with control gates and other equipment. The concrete dam will have a length of 1,110 metres and a maximum height of 60 metres above river bed level. The length of the earth embankments will be approximately 8 kilometres.

The Associated Works will comprise the construction of permanent and temporary housing with roads and services, together with an airstrip as well as a road bridge across the river.

ASSOCIATED WORKS

1) A preliminary document and drawings outlining the work involved will be available for issue now.

2) Contractors who may be interested in tendering for the Associated Works should submit full details of their qualifications and experience as soon as possible and not later than June 20th, 1960 to enable tender documents and drawings to be issued in July 1960 to those Contractors who satisfy the requirements of the Ministry.

Work will have to be started in November 1960.

MAIN CIVIL ENGINEERING WORKS

ALTHOUGH THE GOVERNMENT OF THE SUDAN ARE NOT YET ABLE TO ENTER INTO ANY DEFINITE COMMITMENT, IT IS HOPED THAT THE MAIN CIVIL ENGINEERING WORKS WILL COMMENCE ABOUT NOVEMBER 1961.

A preliminary document and drawings outlining the work involved will be available for issue now.

Contractors who may be interested in tendering for the Main Civil Engineering Works should submit full details of their qualifications and experience as soon as possible, and not later than July 15th, 1960 to enable tender documents and drawings to be issued in January 1961 to Contractors who satisfy the requirements of the Ministry. ALWAYS PROVIDED THAT THE GOVERNMENT HAS FINALLY DECIDED TO PROCEED WITH THE WORKS IN NOVEMBER 1961.

The Joint Consulting Engineers to the Ministry on this project are:

Sir Alexander Gibb & Partners,
Queen Anne's Lodge
Westminster,
London, S.W.1

and

MM. Andre Coyne et Jean Bellier
19 Rue Alphonse de Neuville
PARIS XVII

Application for the preliminary document by bona fide firms should be made to one of the following, with a copy to the Consulting Engineers:

The Ministry of Irrigation & Hydro-Electric-Power
The Republic of the Sudan,
P.O. Box No. 878
KHARTOUM (SUDAN)

The Director
Ministry of Irrigation & Hydro-Electric-Power
The Republic of the Sudan
WAD MEDANI (SUDAN)

Applications received after the dates specified above might not be considered.

(Continued on the following page)

Read the Official

Proposal Columns of ENGINEERING NEWS-RECORD

This Week and Every Week

AN AUCTION

CONSTRUCTION EQUIPMENT

TUESDAY, JUNE 28, 10 A.M. (EST) MARIETTA, OHIO

LOCATION: On Hiway 351 on Eastern edge of Marietta, O., about 100 mi. SW of Wheeling, W. Va., or 100 mi. SE of Columbus, O.

NOTE: All of this equipment was formerly used by Claude A. Janes, Inc. (Contractor) of Chesterhill, O.

EACH PIECE POSITIVELY SELLS TO THE HIGHEST BIDDER WITHOUT LIMIT, MINIMUM OR RESERVATION!!!

SHOVEL—DRAGLINES—GRADALL

Lima 1601 Shovel, S/N 3339-23, with Cummins NVHI-12 engine, in good condition (NOTE: Above shovel located 50 mi NE of Marietta or 8½ mi W of Clarington, O. just off Route 78); Gradall, S/N NP60529, low hours & very good; Lima 34 Crane, S/N 331559, good; Lima 34 Dragline, S/N 4293, fair; Lima Shovel Front; Buckets.

TRACTORS—LOADERS

Cat D-9, S/N 19A-997, w/Hyd. Ripper, 9A dozer & CCU, good; D-8, S/N 19A-616, w/dozer & CCU, good; D-8, 14A-6258, w/dozer & CCU, low hours; 3 D-8's, 15A's w/dozers & CCU's, all good; 2 D-8's, 2U's w/dozers & CCU's, good & fair; Fair 1H w/dozer; Cat D-6, 9U w/hyd dozer, good; AC HD-6G Loader w/Backhoe, fair; Michigan 175AG Loader, low hours.

TRUCKS

Autocar 1956 DC103T Diesel Tractor, low miles; GMC 650 Diesel Tractor; 2 '57 F-600 Dump Trucks; 2 '57 F-600 Tank Trucks; '57 F-800 Winch Truck; Grease Truck; 9 Ford & GMC Pickups, '57 & '59; Pontiac '59 Stn Wagon; Others.

GRADERS—MOTOR SCRAPERS—EUCLID TRUCK

Cat 12 Grader, 8T-19501 w/Preco Blade Control, good; Cat 12, 8T-19666, good; 2 Adams 660 Graders, S/Nos. 2810 & 1557, w/hyd-shift, both good. AC TS-260 Mtr Scraper, good; LeT-West D Roadster, good; 3 LeT C Pulls, good to fair; 3 LeT-West B Pulls w/Cummins power, good; LeT LP Scraper; Euclid 8TD End Dump, fair.

ROLLERS—PAVING EQUIP.

Buffalo-Spgfld K45-16T Kompactor, S/N 29076, w/Cat D-318, very good; Buffalo-Spgfld KX25E 3-axle Roller w/vib roll, low hours; Galion Chief 10-T Roller, S/N CRG40646, good; 3 Sheepfoot Rollers; Winslow E Bin-A-Batch; Apsco 120-52 Paver; Jersey 101 Spreader; Littleford Broom; Other Items.

COMPRESSORS—AIR TRACS—MISCELLANEOUS

Gardner-Denver 600 Rotary Compressor, S/N 212817, very good; G-D 125 Comp; 2 G-D Air-Trac Drills, Models 7CHB & 7CWD, both good; LeRoi 25AD & 20 AD Generator Sets; Welders; Pumps to 6"; Saws; Mixers; Other Items.

WRITE-WIRE-CALL Auctioneers for full list. Inspect any time.

TERMS: FINANCING AVAILABLE!! OR—Complete Payment Sale Day.

⅓ down to contractors, up to 3-yr to pay on major items, (No Prequalification Necessary).

FORKE BROTHERS
the Auctioneers
321 Sharp Bldg. **Lincoln, Nebraska** HEmlock 2-1045

EACH PIECE POSITIVELY SELLS TO THE HIGHEST BIDDER WITHOUT LIMIT, MINIMUM OR RESERVATION!!!

WALTER E. HELLER & CO., INC.
OWNER
342 Madison Ave.
New York 17, N. Y.

— EQUIPMENT AUCTION LEADERSHIP SINCE 1921 —

OFFICIAL PROPOSALS

(Continued from preceding page)

Bids: June 21, 1960

Cannonsville Dam
Contract 465

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Daylight Saving Time (10:00 A.M., Eastern Standard Time), on Tuesday, June 21, 1960, for Contract 465, for the construction of the Cannonsville dam, waste weir, and weir, waste, and outlet channels, and the completion of construction of the release water works, together with the plugging of the diversion conduit, construction of a gaging weir, access road and final grading in the vicinity of the dam, installation of equipment and other appurtenant work, all as set forth in the specifications. The Cannonsville dam will be approximately 2,800 feet in length along the top, will have a maximum height of about 175 feet, and will be constructed of earth compacted by rolling. The work is located near the Village of Deposit, Delaware county, New York.

Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in the Secretary's office, Room 1312, at the above address, upon application in person or by mail, by depositing the sum of $5.00 for each pamphlet. Within 30 days following the award of contract or rejection of bids the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of $4.00 will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars apply at the office of the Chief Engineer at the above address.

ARTHUR C. FORD, President, EDWARD C. MAGUIRE, HERBERT M. ROSENBERG, Commissioners; Board of Water Supply; BETTY COHEN, Acting Secretary.

EMPLOYMENT OPPORTUNITIES

ADDRESS BOX NO. REPLIES TO: Box No. Classified Adv. Div. of this publication. Send to office nearest you.
NEW YORK 36: P. O. Box 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

• POSITIONS VACANT

Estimator—Expanding Philadelphia Contractor has an opening for man thoroughly experienced in competitive public bidding. Top pay and working conditions. Wingate Construction Company, 34 So. 17th Street, Phila., 3, Penna.

Detailer & Checker Structural Steel. We require an experienced man between the ages of 30 and 45 years for permanent position in our Drafting Room. Hospitalization and retirement benefits. Give references, age, and salary expected in application. Barber & Ross Company, 2323-4th Street, N. E., Washington 2, D. C.

Civil Engineer—Registered Professional Engineer capable of performing engineering and administrative duties required of City Engineer. Salary open. Send resume of educational and work experience background and salary requirements to City Manager's Office, City of Marysville, Michigan.

Permanent Position: Structural engineer with M.S. degree from well recognized engineering school. Well grounded in the Theory of Elasticity to handle complex indeterminate structures. Excellent living conditions, good future for young and responsible engineer. Submit Graduate School credits. Location North Carolina. P-4509, Engineering News-Record.

Engineer—Job Superintendent—Capable of handling a million dollar project. Central Illinois Contractor, profit sharing, good future. Give education, experience, salary expected, photo and references in reply. J. L. Wroan and Sons, Inc., Normal, Illinois.

Soils Engineer—To supervise soils laboratory, foundation and subgrade investigations, exploratory drillings, compaction control and related operations for National organization, Pennsylvania location. P-4500, Engineering News-Record.

• POSITIONS VACANT

Civil Engineer. Experience in soils laboratory helpful. Good opportunity for young man. P-4516, Engineering News-Record.

Draftsmen, Structural-Experienced checkers and detailers of structural steel shop drawings. Permanent position. Fink and Zwecker Co., 1100 Crescent Ave. N.E., Atlanta 9, Ga.

Superintendent - Engineer - Foreman. Sewer-roadwork. New York area. Address experience resume to P-4565, Engineering News-Record.

Highway Junior Engineers for State of Connecticut. New half-billion dollar construction program now in planning and design stage. Opportunities galore for planning, design, traffic. Excellent working conditions. Modern air-conditioned building. Steady professional advancement. Chance to participate in program of full-time graduate study at Yale (Traffic School) while receiving full salary. Merit exam. will be given throughout the U. S. at locations convenient for applicant. Write to State Personnel Department, Room 405, State Office Building, Hartford, Connecticut.

Midwest Consulting Engineering Firm has openings for Structural Design Engineer with few years experience in general structural design. Masters Degree in structures preferred; mechanical design engineer with experience in reports and design of power generating stations; sanitary design engineer experienced in waterworks and sewerage and drainage design and reports; electrical design engineer with general experience in electrical design and reports. Send resume of training, experience and references to P-4545, Engineering News-Record.

Specifications Writer. Permanent position available immediately with established Midwestern consulting firm. Architectural degree preferred. Moving expenses paid. 3-week vacation. Salary commensurate with ability. Write P-4548, Engineering News-Record.

Constructions Costs - Architectural - Engineer with 2 or 3 years estimating on industrial, commercial buildings, schools, etc. College degree—age 30 to 45. Location N.E. Permanent position. Send resume. P-4549, Engineering News-Record.

(Continued on opposite page)

EMPLOYMENT NATIONAL COVERAGE OPPORTUNITIES

DISPLAYED RATE:

The advertising rate is $39.20 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.

An advertising inch is measured 7/8" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

JUNE 23RD ISSUE CLOSES JUNE 13TH

UNDISPLAYED RATE:

$2.40 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Position Wanted ads take ½ of above rate.

Box numbers—count as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Not subject to agency Commission.

Send NEW Ads and Inquiries to Classified Advertising Division or ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36.

DISTRICT REPRESENTATIVE

For well established light construction equipment company to cover New England south including Virginia, calling on established construction equipment dealers. Engineering background or strong mechanical aptitude and sales experience preferably this field. Age 25 to 40. State in detail education, experience, personal history, salary requirement. Salary and expenses plus bonus.

RW-4532, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

• POSITIONS VACANT

(Continued from opposite page)

Black Top superintendent wanted. Experienced in handling men and maintenance of equipment. Good future. P-4552, Engineering News-Record.

Construction Superintendent, C.E. Pittsburgh Area. Must be experienced Public Works, general construction. Send resume stating age, education, experience, references, salary desired. P-4555, Engineering News-Record.

Materials Engineer—To take responsible charge of physical testing laboratory. Must have broad background in all phases of materials and environmental testing, knowing soils testing, design and field control of concrete mixes, welding and steel erection inspection plus environmental testing experience. Aggressive in the fields of management and promotional operations. Permanent position with opportunity for advancement in a rapidly expanding company. Salary $10,000. to $15,000. a year plus benefits. Location, San Francisco area. Send complete resume to P-4544, Engineering News-Record.

Project Engineer: Industrial Plant Design. Established consulting engineering firm requires engineer, preferably with degree in Mechanical Engineering and with paper mill design included in a background of experience of at least five years in responsible charge. Location — Boston, Massachusetts. Write:—P.O. Box 658, Boston, Mass.

• POSITIONS WANTED

Controller — Office Manager, etc. salary 190.00 per week—consider overseas. PW-4434, Engineering News-Record.

Chief and Administrative Engineer, age 42, 10 years design and supervisory experience in consultant engineering. Graduate and registered professional engineer. PW-4415, Engineering News-Record.

Field-office engr. layout, supervision, take off, etc. municipal, bldg. and heavy const. large or small firms, single. Location open. E. Brown, 600 N. 71st Ave., W. Hollywood, Fla.

Graduate Civil Engineer, 31, Married, 6 Years Construction Experience, U. S. Citizen, Fluent Spanish, Registered in Colombia, will consider U. S. or Foreign employment. PW-4460, Engineering News-Record.

Construction Manager, BSCE and 2 years M.E. Thoroughly capable, 20 years experience on various type projects. Best of references. Presently employed, desire change. Now have unclassified G. C. license in N. C., will work anywhere in U. S. PW-4464, Engineering News-Record.

Electrical Supt. or Chief Electrician age 59. 40 years experience, Construction Maintenance, Starting Salary $200.00 per week. Excellent References, Resume on Request. PW-4471, Engineering News-Record.

Project Manager or Engineer. California Registered P.E. M.S. in Structural Engineering. Fellow-ASCE. 28 years experience in construction, design and administration of highways, bridges and storm drains. Administration of multimillion dollar complex interchanges for past ten years. Can handle projects from preliminary design to completed construction. Desires foreign work. PW-4483, Engineering News-Record.

SENIOR PROCESS ENGINEERS

Permanent employment with an expanding company. Excellent advancement opportunities for men with at least 10 years experience in process design of petroleum and petro-chemical plants.

Send detailed resume to:
G. VICTOR HOPKINS

ARTHUR G. McKEE & CO.
2300 Chester Ave., Cleveland 1, Ohio

ESTIMATOR (CHIEF)

For nationally known General Contractor.
Heavy take-off & pricing in all phases of construction.

EXCELLENT OPPORTUNITY.

P-4533 Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

ENGINEERS

Immediate openings for engineer—designers with minimum five to ten years experience in design and planning of hydroelectric projects. **Also senior hydrologist, senior and junior hydropower planners.** Fringe benefits. Send complete resume of experience and qualifications to:

HARZA ENGINEERING COMPANY
400 West Madison Chicago 6, Illinois

• POSITIONS WANTED

Construction Superintendent B.S.C.E. Exp. Mgr., Chf. Eng., Hvy. Const. Roads, Flood Control, Tunnels, Bldgs., Govt. Contracts, will Relocate, 3419 Utah, St. Louis, Mo., Elswirth.

Structural Steel Fabrication Manager 10 years experience, estimating, selling, supervising. Production of 2 million per year. Business BSCE and 2 years M.E. Best of references. Excellent varied experience. Presently employed, desire change. Will relocate anywhere in U. S. PW-4463, Engineering News-Record.

Executive 15 yrs exp every phase of the business, field & office, legal-const background, mgr, atty, administrator, troubleshooter. PW-4473, Engineering News-Record.

Estimator. Experienced in estimating and cost keeping, Highways and Drainage contracts. Evenings and weekends, Long Island. PW-4487, Engineering News-Record.

Chemist. Age 32. Has graduate work including strong engineering background. Considerable experience in soils, asphalts and concretes. Presently supervising a laboratory. Desires more opportunity. Resume on request. PW-4512, Engineering News-Record.

Registered Civil Engineer and Land Surveyor, 31, desires position with consulting engineer designing housing subdivisions or with contractor doing similar work. Prefer Florida or Mid-Atlantic States. PW-4514, Engineering News-Record.

Construction Engineer desires field or office position—14 years varied experience. PW-4511, Engineering News-Record.

Ass't. Const. Supt. with mining company desires work with growing construction company west coast. PW-4379, Engineering News-Record.

(Continued on the following page)

WANTED

BUSINESS PARTNER
as
EXECUTIVE Vice-President and General Manager

Consulting Engineering and General Contracting Group

World Wide Contacts
Foreign and Domestic Projects

Sales experience Essential

Minimum investment $50,000.00

Annual income should equal investment
Send complete resume first letter

P-4350—Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

SENIOR ESTIMATOR

We want an experienced construction man who is able to participate and direct others on the quantity survey, pricing, subbid solicitation, analysis, and final close-out of bids for large building, technical and industrial projects.

Most of our work is in the Western and particularly Southwestern portion of the United States, however, we bid throughout the world. Our current volume is in the 60 million dollar range. Our growth pattern has been outstanding among building contractors and applicants will be considered on ambition and ability to help in this expansion, as well as the prime qualifications of experience, education, executive and technical ability.

C. H. LEAVELL & COMPANY
1900 Wyoming Ave. El Paso, Texas

MECHANICAL ENGINEERS

Openings for graduate engineers with a minimum of 5 years experience with consulting firm on piping, review of manufacturer's drawings, equipment layout. Powerplant experience desirable. Fringe benefits, part relocation costs. Send experience resume to Personnel Department.

HARZA ENGINEERING COMPANY
400 W. Madison Street Chicago 6, Illinois

PRODUCTION ENGINEERS

To Locate in Florida

Desirable Positions available immediately with very large progressive prestressed and precast concrete manufacturer.

Salary commensurate with ability.

Send complete resume with recent photograph.

Will contact qualified applicants and arrange for personal interview.

P-4584, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

• POSITIONS WANTED
(Continued from preceding page)

Steel and mechanical erector desires challenging position—excellent references. PW-4518, Engineering News-Record.

Supt. or General Foreman—age 43—over 18 years experience highway construction supervising earthmoving equipment, excavating, drainage. Know men, methods and cost. Available at once. A-1 references. PW-4524, Engineering News-Record.

Civil Engr, 28, registered, desires position in Middle Atlantic States. Experienced in steel design, prestressed and reinforced concrete design. PW-4522, Engineering News-Record.

Construction superintendent considerable experience in industrial and commercial work. PW-4494, Engineering News-Record.

Construction Superintendent—Project Manager. Industrial & Commercial buildings. Will relocate. PW-4497, Engineering News-Record.

Electrical Engineer, BEE, Reg PE, 37, 14 years diversified experience in industrial power and control, power distribution, and petroleum-electric fields. Four completed foreign contracts. Speaks French, Spanish. Available foreign or domestic. PW-4506, Engineering News-Record.

Civil Engineer; Married; 30; M. ASCE; B.S.C.E.; M.S.C.E.; 5 years experience heavy construction, 2 years experience university teaching and research (Civil). Speaks the Scandinavian languages, German, some French and Spanish. Foreign only. PW-4397, Engineering News-Record.

Construction Supt. General Construction. PW-4482, Engineering News-Record.

Manager of Construction. Twenty-four years of experience with two major metal and chemical companies in supervision and controlling industrial construction of all types. Cost estimation, profitability analysis, contract negotiation, cost control and field supervision of contractors. Graduate civil engineer, 48 years old, married. PW-4575, Engineering News-Record.

General Supt. Age 50—25 years experience sewer and water line construction also well points. Reference on request. Available now. PW-4576, Engineering News-Record.

Construction Superintendent 25 years experience on industrial & municipal work. Power, water and sewage plants from bid to completion. Will relocate. PW-4566, Engineering News-Record.

Mechanical Engineer: Reg. P.E. Experienced in steam power plant & general construction desires position with contractor. PW-4560, Engineering News-Record.

Civil Engr Grad—25—Helicopter, fixed wing & instrument commercial pilot. Some experience in consulting, sanitation & highways. Desire engineering work where flying will be an asset. Eligible to leave Army Sept 60. PW-4547, Engineering News-Record.

Available Executive Hydraulic Dredge Civil Engineer. Many years experience in field investigation, estimates, management, consultant. Full time or project basis. PW-4554, Engineering News-Record.

Florida—Age 29, BSCE, seeks permanent position offering variety and opportunity for advancement (const., engr., or sales). Hiway background, incld. structures. Know heavy equip. Complete resume on request. PW-4517, Engineering News-Record.

Engineer, 15 years experience coordinating design and construction major projects, desires active partnership in contracting, consulting or construction materials business requiring cash investment under $20,000. PW-4578, Engineering News-Record.

Field-office engr., 31, BCE, NYPE. Presently employed heavy const. Estimating, etc. PW-4579, Engineering News-Record.

Field Eng./Estimator/Asst. Supt.—39. Drainage & sewer projects, concrete & earthworks, general construction. Locate West or Southwest—4905 Quitman—El Paso, Texas.

Steel fabricator, plant or general manager. Age 44, married, B.S.C.E., Reg. C.E. Calif. Experienced in structural design, estimating, detailing, plant and field supv. and management. Desire position with established, progressive company offering opportunity for advancement. Prefer West Coast. Available now. PW-4580, Engineering News-Record.

Structural Engineer, age 34, 13 years experience: construction, design and supervisory, including refineries, airfields, dams, hydraulic structures, bridges. Graduate engineer and registered. PW-4581, Engineering News-Record.

Civil/Structural, 38, registered, B.S.C.E., recent grad. work, 10 yrs. layout and structural design of chemical, atomic, and missile facilities. Some highway and field work. PW-4570, Engineering News-Record.

SEARCHLIGHT SECTION
CLASSIFIED ADVERTISING

BUSINESS OPPORTUNITIES - EQUIPMENT - USED or RESALE

DISPLAYED RATES

The advertising rate is $25.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured 7/8 inch vest. on one col., 3 columns—30 in. to a page.

EQUIPMENT WANTED or FOR SALE ADVERTISEMENTS acceptable only in Displayed Style.

UNDISPLAYED RATES

$2.40 a line, min. 3 lines. To figure advance payment count 5 average words as a line.

BOX NUMBERS count as one additional line in undisplayed ads.

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads.

Prismatic Engineers **COMPASS**

$6.50 SPECIALLY MADE TO RIGID SPECIFICATIONS

50¢ ext. ship. chg. $40 Val.

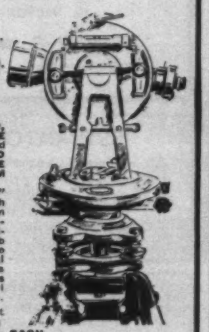
Contains a magnetic needle, attach to a mother of pearl floating dial, for night reading. Graduated in degrees, numbered every 20 degrees, from 0 to 360.

SPECIAL OFFER!

RECEIVED FROM U.S.A. GEODETIC SURVEY

E. R. WATT & SON LTD.

STANDARD THEODOLITES



APPARENTLY UNUSED, Complete in FITTED CASE with ENGINEER and BUILDERS STANDARD 3½—8 Wide FRAME STIFF LEG MAGNESIUM TRIPOD.

These theodolites have 8" inverting telescope with cross hairs and stadia on a glass reticle; approximately 28 power magnification; 5" horizontal limb with 2 verniers reading to 20 seconds. 4½" vertical circle with 2 verniers reading to 20 seconds. Has built-in magnifiers for all verniers. Has no compass.

Sm. Fraction of Govt. Cost

$295 EACH Ship. Chg. Collect

• *ENGINEERS* • *SURVEYORS* • *BUILDERS* • *COLLEGES* • *FARMERS*

J. JACOB SHANNON & CO. 220 N. 22ND ST. PHILA. 3, PA.

USED GATES

St. Lawrence Power Project—Massena Intake

8—15' x 31' GATES COMPLETE

Designed for 85 ft. Head on Sills

4 ea.—Fixed-wheel service gates—15 x 31 feet high—fabricated in three sections—83,000 pounds each gate.

4 ea.—Fixed-wheel emergency gates—15 x 35.5 feet high—fabricated in three sections—88,000 pounds each gate.

8 ea.—Gate hoists for above gates—single drum—100 tons capacity—50 HP 220/440 volt, 3 phase, 60 cycle.

1 ea.—440 volt panel board and motor control center, including two-225 Kva 2400/480 volt, 3 phase transformers.

8 ea.—Steel stop logs—16' 10" x 5' 7"—8000 pounds each.

1 ea.—Lifting beam for stop logs—2700 pounds.

CONTACT: UHL, HALL & RICH, P. O. BOX 68, MASSENA, NEW YORK

Engineers for Power Authority of the State of New York

5—VT-12-1 CUMMINS DIESEL ENGINES

Used less than 250 hours. 600 H.P. @ 2100 RPM. Equipped with #0-SAE flywheel housing; 2—#T-590 turbocharges; 2—15" oil bath air cleaners; 2—Perry water filters; Penn. safety controls, mechanical variable 3-speed governor. Includes industrial radiator with fan drive, and with or without Cotta 6-speed transmission. Price with transmission $11,000.00 each, FOB Long Beach, Calif. or Breckenridge, Texas. For information call or write W. E. Rafferty, BJ Service, Inc., 605 Paramount Blvd., Long Beach, Calif.

ADDRESS BOX NO. REPLIES TO: Box No. Classified Adv. Div. of this publication. Send to office nearest you.
NEW YORK 36: P. O. Box 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

Contract Work Wanted. Architectural design, civil, structural, mechanical, electrical design and/or drawing. 11 types of structures. Professional engineers and architects. CWW-4577, Engineering News-Record.

• WANTED

Anything within reason that is wanted in the field served by Engineering News-Record can be quickly located through bringing it to the attention of thousands of men whose interest is assured because this is the business paper they read.

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty-eighth year

WILSON *Engineering Corp.*
College House Offices HARVARD SQ. CAMBRIDGE MASS.

CONSTRUCTION SUPERVISION

Exclusive Training Course by mail for top positions. Publishers Manual of Advanced Construction Management. Send postcard for details.

National Schools of Construction
Est. 1932
Satsuma, Florida

LINK BELT K 580 CRANE

Located in Miami, Florida

6 years old; unused last 2 years.

Will accept first reasonable cash offer.

FS-4531 Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

Your inquiry will have Special value . . .

If you mention this magazine, when writing advertisers. Naturally, the publisher will appreciate it . . . but, more important, it will identify you as one of the men the advertiser wants to reach with this message . . . and help to make possible enlarged future service to you as a reader.

CONCRETE PAVING EQUIPMENT

FOR SALE

1—Koehring 34-E Dual Drum Paver, Diesel powered w/ latest accessories.

3350'—17" x 17" x ¼" x 10' Heavy Duty Airport Forms

1—Heltzel 3 compartment Aggregate Bin w/ dual weighing hoppers, 100 Ton

1—Heltzel 300 Bbl. Bulk Cement Plant w/ dual weighing hoppers and w/ 150 Ton Elevator.

W. L. JOHNSON CONSTRUCTION COMPANY AND ASSOCIATES
P. O. Box 6668, Bexley Station
Columbus 9, Ohio Phone: TEmple 3-1327.

---

(1) Saginaw Trailer Serial #B 292399 Gypsum Machine with Moyno Pump. Very Good Condition.....$4000.00

(1) Essick Plaster Mixer with Robbins and Myers Moyno Pump with Wisconsin Motor mounted on 1951-1-½ Ton Chevrolet truck. All items in good mechanical condition.....$3000.00

GENERAL ROOFING COMPANY
P.O. Box 271, Washington Pike Bridgeville, Pa.

High Speed in 6x6's
NEW ISSUE TRUCKS
GMC! MACK! REO "Eager Beaver!"
• *Tandem Axle* • *Front Wheel Drive*
For specifications, prices, delivery, write
MEMPHIS EQUIPMENT COMPANY
P.O. Box 2852, Dept. E., Memphis, Tenn.
NATION'S LARGEST ARMY TRUCK DEALER!

SURVEYING INSTRUMENTS
USED • REBUILT • SALE
RENT • REPAIRING

TRANSITS AND LEVELS

New or Rebuilt
Sale or Rent

Headquarters for REPAIRS — any make — Factory Service We will also buy your old instruments or take them in trade.

A complete line of Engineering Instruments and equipment for field or office. Write for catalog NRL 106.

WARREN-KNIGHT CO.
Manufacturers of Transits and Levels
136 No. 12th St., Philadelphia 7, Penna.

RE-BUILT REPAIRS RENT REAL EXPERTS
ALL MAKES
BUFF

89 Day St., New York WOrth 2-2797

TRANSITS & LEVELS
Various Makes
NEW & REBUILT
Fully equipped modern shops — all makes and models repaired — all work guaranteed — prompt service — complete line field supplies.
INSTRUMENTS RENTED
Midwest Distributors for W. & L. E. Gurley and Wild Heerbrugg Instruments
NATIONAL BLUE PRINT CO.
Established 1911
210 S. Canal St. Chicago (6), Ill.

FOR SALE

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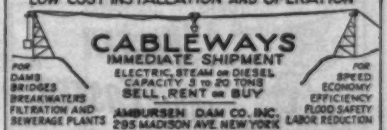

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Rail Transit Comeback

AN IDEA IS BEING REBORN, and it is none too soon. It is that large metropolitan areas must place major reliance on mass transit facilities—principally rail—to secure even a reasonable solution to their transportation problems.

Time was—in the 1930s and before—when this fact went unquestioned. New York added to its subway mileage, Philadelphia and Chicago built new subways, and Cleveland built a rail commuter line to one of its suburbs. But the spectacular growth of highway transportation, with all of its advantages, caused the idea of reliance on rail transit to be "mothballed" like our obsolete warships. It was a regrettable error. All kinds of transportation should have continued to have been developed side by side.

There is now some hope that this missed opportunity will be grasped anew. Engineers and construction men should be in the forefront of those who are working to see that it is.

To characterize a revived interest in rail mass transit as a "comeback" may exaggerate and oversimplify the actual situation, yet developments can be cited that spell progress in that direction. Cities wrestling with plans to fit themselves for the future no longer ignore the possibilities of rail rapid transit. San Francisco this fall will vote on a proposed bond issue for a regional transit system. Toronto is ready to add to its subway system, even now the newest one in North America. And Chicago, which recently brought an extension of its subway to the surface and placed it in the median strip of its new Congress St. Expressway, is planning to repeat the operation on other expressways now under way and proposed.

Developments of a promotional nature, to arouse public interest and secure public support for mass transit facilities, are also significant. The American Council to Improve Our Neighborhoods (Action, Inc.) has recently broadened its goals to include transportation as well as better housing, and this week is sponsoring a two-day conference in San Francisco on "Efficient Urban Transportation in the American City." Along the same lines, too, the General Electric Co. has organized a group of its transportation experts to work with leaders in large metropolitan areas on public education programs for more efficient transportation, and as one step has developed a 10-minute movie for civic groups.

Acknowledging GE's stake as a supplier of a wide variety of products to the transportation industry, Fred J. Borch, vice president, in announcing the program also emphasized the company's concern, as a "corporate citizen," with the inefficiency of metropolitan transport. He urged a coordinated transportation system "anchored in sound, long-range metropolitan planning" and made possible by a "balanced and broad-based method of financing." "Experts have concluded," he said, "that a balanced metropolitan transportation system using a combination of private automobiles, strategically located off-street parking, commuter railroads and modern high speed, grade-separated rail rapid transit is the only way out of the transportation dilemma."

Such a coordinated system is indeed the only way out. Highways and expressways must continue to be built, but without help from mass rapid transit they can never solve the problem. That is why revived interest in rail rapid transit is so significant, why a comeback for this kind of transportation is so much to be desired.

An Employers' Obligation

EMPLOYERS OF PROFESSIONALS—engineers in our instance—have an obligation to let their employees develop professionally. And the National Society of Professional Engineers has done well to establish an award for those who do.

Professional development for engineers means many things. It means participation in professional societies, attendance at meetings, writing for publication, legal registration, advanced education, fullest use of talents, and more. It is something that must be accomplished; it cannot be applied. As Moorhead Wright, who heads GE's management development institute, puts it: "Development is not something you do to a man. It comes from within." But the opportunity and encouragement can and should be provided by employers for self-development of all their employees. Professional employees require more opportunity than others, and should require less encouragement.

NSPE's first winner of its new Industrial Professional Development Award is Phillips Petroleum Co., which does an impressive lot of things to let its professional employees develop (ENR May 5, p. 25). It is significant, we think, that the Phillips turnover rate among its many hundreds of such employees was barely over 5% in 1959.

The largest employers of professionals in the construction industry are the governmental agencies. And as a class these public employers do well by their engineers in affording time and sometimes money for activities and education that will help them grow professionally. These agencies would win no prizes for the salaries they pay, but they would rate consideration for award if NSPE's competition were not limited, as it is, to private industrial employers.

As to the private employers of engineers in our industry—the consultants, the contractors and the big combined engineer-constructor companies—we'd like to think there are Phillips types among them. Maybe one of these years NSPE will seek out an award winner from the construction industry. Meanwhile, maybe NSPE's award will inspire our many employers who do not meet their obligation to professional employees to do so.

L O N G - T E R M E C O N O M Y

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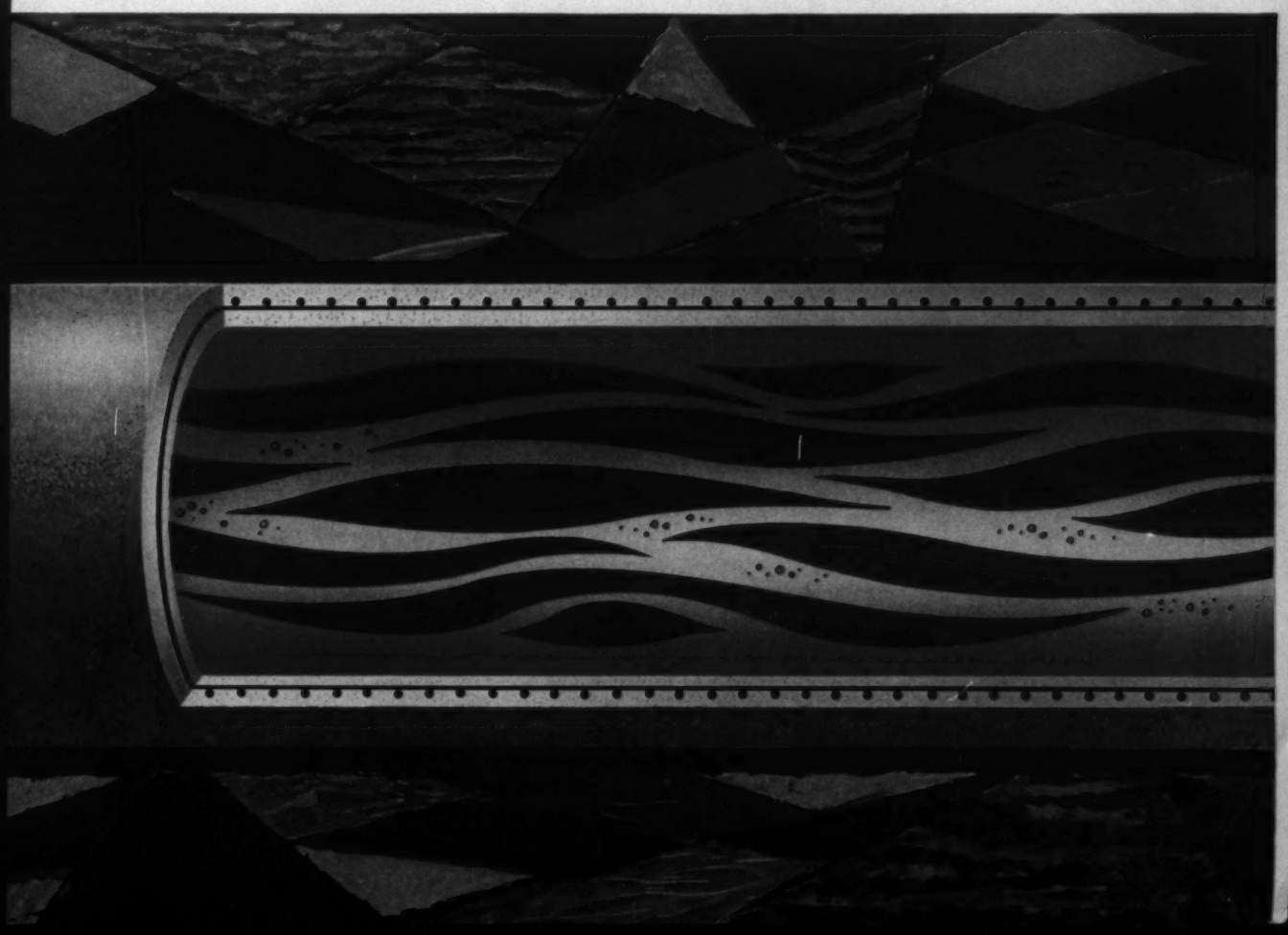
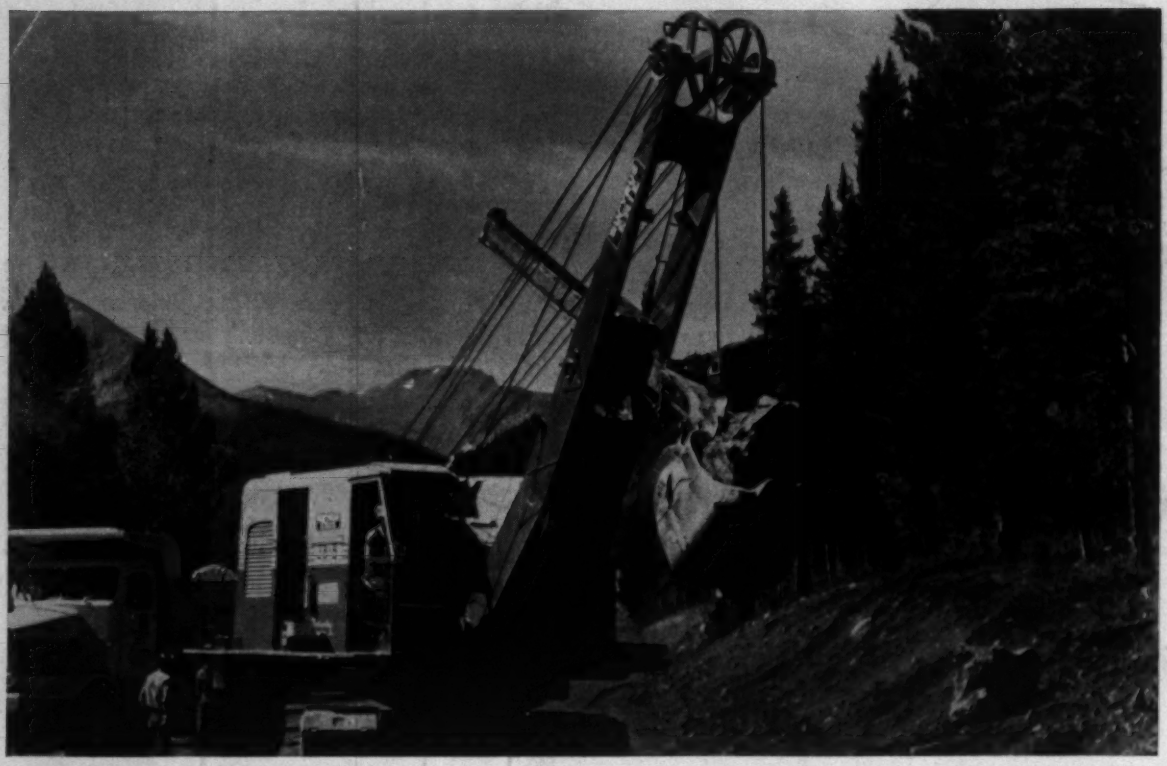


How Bucyrus-Erie assures drum stability, trouble-free performance in 38-B shovel



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To keep its 38-B Shovel working steadily and trouble-free, Bucyrus-Erie engineers had to assure drum stability under toughest digging conditions to provide enduring alignment, trouble-free performance. To obtain this stability, the engineers mount the hoist and crowd drums on Timken® tapered roller bearings. They also use Timken bearings for the vertical transmission shaft and PTO.

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An extra advantage: Timken bearings permit use of tight fits on both bearing cones and cups because the running clearance is set during assembly. It's important when the bearing races are rotating members as in this application.

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